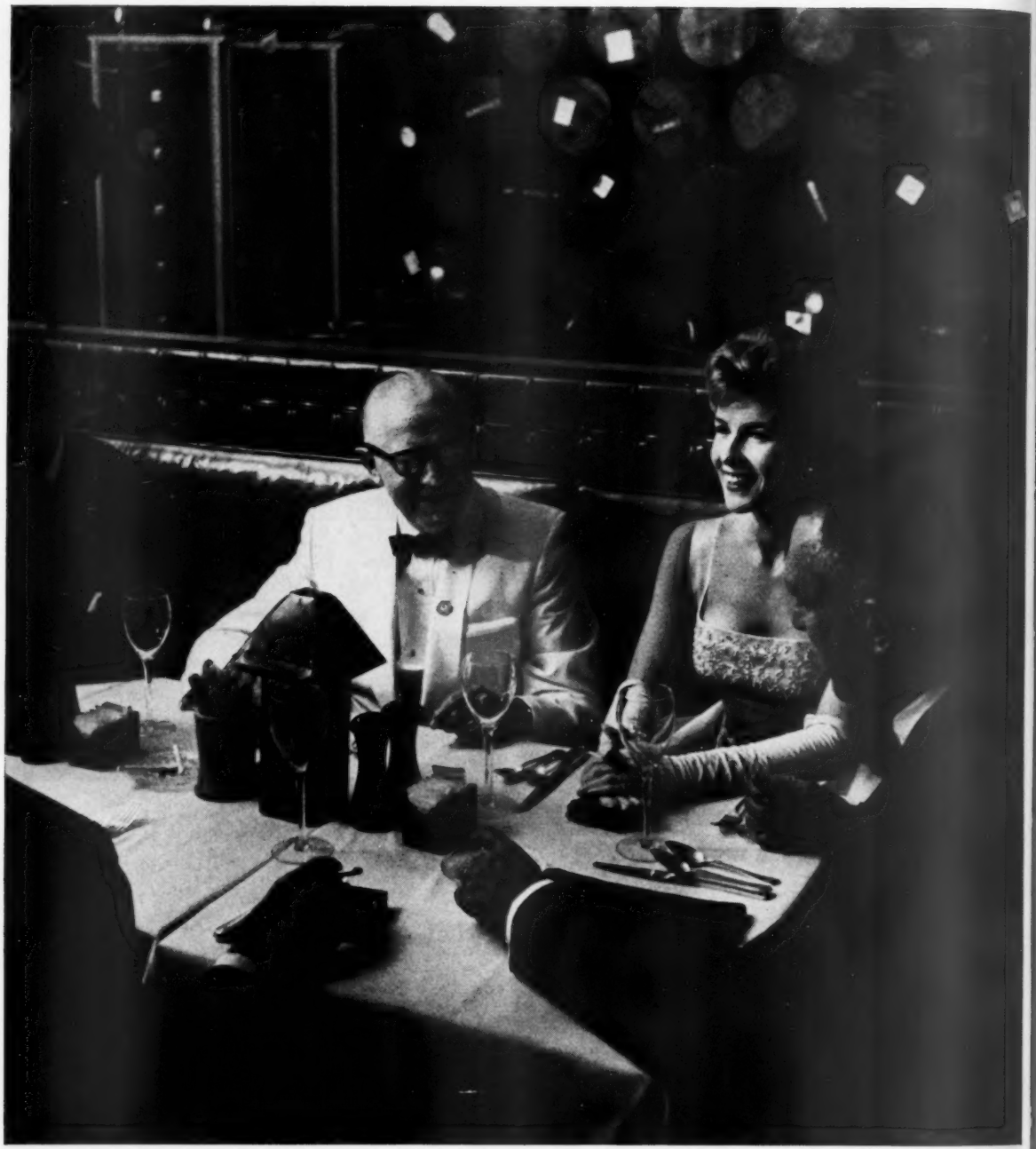
AMERICAN GAS ASSOCIATION

Zachry discusses gas industry role in TV.

see page 2

APRIL
1959



Pictured above with Julia Meade is Mr. Charles Gueffroy. He is President of the Northwest Natural Gas Company, which, like the State of Oregon, is celebrating its Centennial in 1959.

"Yes indeed, Julia Meade, we cook with **GAS** *at the Benson Hotel"*

From shish-ke-bob on a flaming sword to steaks broiled to perfection, the menu of Portland's Hotel Benson is filled with a variety of fine foods that attract discriminating epicures throughout the Northwest.

And like Portland's other fine eating places, the Hotel Benson finds Gas best for preparing their fine meals. In fact, wherever quality counts, you'll find modern Gas equipment in the kitchen. That's because gas brings out all the natural goodness and appetizing appearance of food. It also provides the fastest, most flexible and most dependable cooking fuel.

If you're planning to install, expand or remodel your kitchen, be sure to call your Gas Company's commercial representative first. He'll be glad to show you the results and economies that you can get with modern Gas Equipment. *American Gas Association.*

This advertisement appears in the April issue of "Hotel Management." It also will appear in the June issue of "Newsweek."

Mr. Zachry tells of the importance of continuing our national TV program in an article on pages 2, 3, 4

THE need for continuing a strong national sales program through use of a national television program is emphasized by Clare H. Zachry in a report to the industry on page 2. Mr. Zachry, who is chairman of the National Gas Industry Television Committee, lauds the industry for its growing support of our TV program, but points out that we must continue to build upon the gains we have already made. Proof of the change in over-all attitudes toward gas vs. electric appliances during the past two years is illustrated in a chart on page 3. Surveys have shown that consumer preference for gas and gas appliances has increased since our entry into the national TV field. . . . Proved recoverable reserves of natural gas in the U. S. increased to an all-time high of more than 254 trillion cubic feet in 1958. Details of the annual report, as prepared by A. G. A. and API, begin on page 6. . . . The nation's gas industry research and utilization men will be meeting in Cleveland May 5-7 to attend their 14th annual conference. The importance of today's research on tomorrow's gas industry will be discussed. The advance report begins on page 11. . . . A reminder of what delegates will learn by attending the annual A. G. A. convention Oct. 5-7 appears on page 18. Now is a good time to make that advance registration.

JAMES M. BEALL
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OPERATION TV...

Our National Gas Sales Program

Julia Meade displays the Gold Star Award during recent "Playhouse 90" a

By CLARE H. ZACHRY

Chairman, National Gas Industry Television Committee, and President, Southern Union Gas Co.

In the last decade, national television has emerged as the greatest communication medium the world has ever known.

American business has made national television its prime medium for reaching its customers and prospects. Television's unbeatable combination of sight, sound, and action has brought new and dramatic opportunities for demonstrating and selling products and services.

No wonder, then, that national television must occupy an important and indispensable place in America's fifth largest industry. All segments of the gas industry—utility, manufacturer, pipeline, and producer—have a most vital stake in what television can do in terms of the end result of our joint product.

Through national television, we now have a direct avenue to the homes of both our 30 million customers and the additional millions of prospects who constitute our market. Week after week, via the television screen, we are sending one of the country's top sales personalities into these people's homes to perform convincing demonstrations of the modern and automatic features of today's gas appliances. And, thanks to the magic that is television, we are able to do this at a cost of only one-third of one cent per visit.

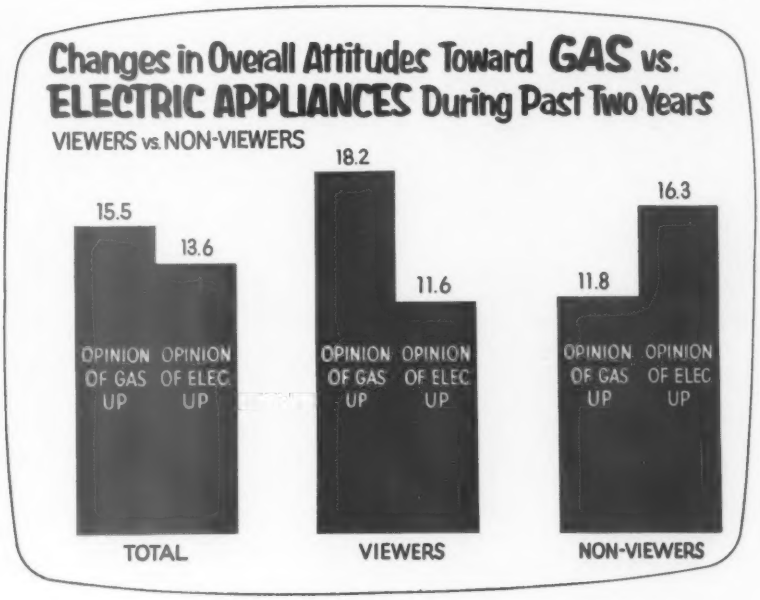
This powerful and consistent selling through national television has changed the entire outlook for gas in just a few years.

Television has completely reversed a 10-year trend of declining consumer attitudes toward gas and gas appliances. It has opened up an entirely new climate for the sale of gas appliances, and has effected increases in our base load.

To our shareholders, and to investors and financial people, our sponsorship of a national television program has offered tangible proof of the gas industry's determination to protect its franchises and to expand its markets. The renewed and growing support of this program by all segments of the industry has brought new confidence to the financial community about the future outlook for gas securities.

The dramatic effect of national television in improving consumer attitudes toward gas is clearly indicated in a continuing national study of these attitudes. This study has been made for A. G. A. each year since the beginning of our tele-

Surveys show national television has brought about increase in consumer preference for gas and gas appliances



vision sponsorship.

The results from the most recent study have just been compiled.

The study's panel—a national cross-section of 2,550 families—was first surveyed just prior to the start of our national television sponsorship. This "base study" was repeated in both December 1957 and December 1958 among the same families.

The second study, in December 1957, showed that, after one year on the air, the 10-year decline in consumer preference for gas had not only halted among *Playhouse 90* viewers, but that it had actually improved. Among non-viewers—those families not exposed to gas commercials—preference continued to mount for competitive fuels and appliances.

In the most recent study, the trend of attitudes in favor of gas gained further momentum among *Playhouse 90* viewers, while consumer preference among the non-viewing group either continued its decline or improved at a slower rate. And, significantly, there are more viewers than non-viewers in the sample.

To summarize this research, members of the panel were asked whether or not their opinion of gas appliances compared to electric appliances had changed during the past two years, and, if so, in what direction.

The results of this research are shown in the television chart above.

Taking the sample—both viewers and non-viewers—as a whole, 29.1 per cent said that their over-all attitudes had changed during the two-year period, 15.5 per cent stated that their preference for gas had increased, and 13.6 per cent said that they had become more disposed toward electricity.

When the results are broken down between viewers and non-viewers of *Playhouse 90,* important differences appear. Among those exposed to our gas commercials, 18.2 per cent said that their over-all preference for gas had improved, while only 11.6 per cent stated that they now leaned more toward electricity.

Among non-viewers, the situation was just the reverse. A preference for electricity was shown by 16.3 per cent, while only 11.8 per cent favored gas.

The effect that national television has had in improving the public's attitude toward our product is one of the freshest and healthiest developments which has occurred in our industry in a long time. Its future benefit to all segments of the gas industry must be obvious to all.

There has been much recognition lately of the great sales

and promotional strides which have been taken by a united gas industry. The national television program is certainly the best example of this new emphasis on the promotion of present and future gas sales.

In addition to its primary value as a powerful advertising vehicle for gas, the national television program has added a new dimension for selling gas and gas appliances to the public.

Currently, national television is spearheading the greatest gas appliance sales drive in history—the Gold Star Range promotion.

Each week, national television carries the Gold Star story into millions of homes, thereby building immediate identification of the Gold Star Award as a buying guide to the finest ranges. Without national television, our industry would not have had the capacity either to launch such a campaign or to back it with the kind of advertising support necessary to assure its success.

Mr. and Mrs. Jimmy Stewart relax during filming of 1959 White Christmas commercials. Their children join them to promote gas

Television has greatly strengthened the position of gas appliances in the important holiday selling season. Two great Christmas campaigns, featuring Bing Crosby and Fred and June MacMurray, have given utilities new local promotional opportunities—opportunities which are reinforced by the selling power of national network television and magazine advertising.

This year, the gas industry can look forward to another year of leadership in this area. Jimmy Stewart and his family are currently preparing for the great holiday gas sales campaign which will appear next fall.

The success which we have enjoyed in television can be traced to the effective way in which we have used the medium. By working together through a national program, each utility, in its own area, has been able to sponsor a top quality program in an excellent mid-evening time period.

Through our collective resources, we have been able to deliver to *Playhouse 90* audiences—which number more than 12 million homes each week—the most effective gas sales messages ever made. Our gas commercials are produced with convincing demonstration techniques, and are delivered by television's outstanding sales personality, Julia Meade. In addition to their national appearances, the gas companies participating in the television program are capitalizing on a library of some 50 selling commercials by scheduling them on their own local stations.

Best of all, cooperation through a national program makes possible this combination of top programs and top commercials at low "cost-per-thousand." Our cost for delivering each gas commercial into 1,000 homes is just $3.44, well below the average of $4.04 spent by other network advertisers. Expressed another way, and previously mentioned above, this amounts to about one-third of one cent per home.

I do not think that there is a doubt in anyone's mind that our national television program must continue. Our accomplishments thus far have proved the powerful effect of this advertising in selling the benefits of gas to our customers and prospects. And, since the effect of advertising is cumulative, I believe that we have only scratched the surface of the full potential of this great medium.

At this time, when the electric utilities, through their own association, are launching a program in national television, we in the gas industry must continue to send the gas sales messages to our millions of customers and prospects through this advertising medium.

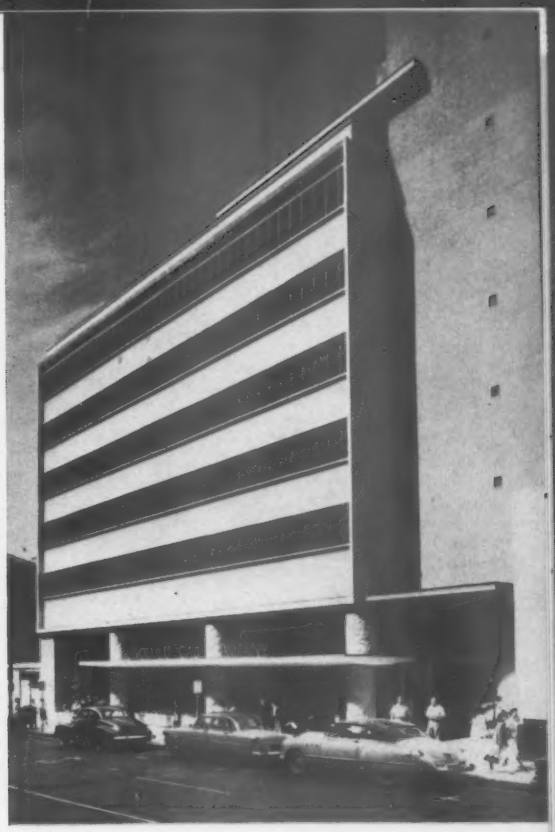
Our present television contracts expire next September. It is expected that the 1959-60 program will commence next October. It is not known at this time if *Playhouse 90* will be available on a basis which will enable us to continue our sponsorship next season. Whether *Playhouse 90* will continue to be our best buy, if it is available, or whether some new show will be bought to take its place cannot yet be decided. Whatever our decision regarding the choice of a program, we must remember that the most important thing for the gas industry to do is to make sure that the selling force of national television continues to be employed on behalf of gas.

If gas is to be assured of a top program in the fall network lineup, it is important that we be in a financial position to make time and program commitments by May 1. To this end, the Television Committee is now engaged in raising funds for our 1959-60 program.

Year after year, there has been growing support for the national television program by increasing numbers of utilities, pipelines, and gas appliance and equipment manufacturers. If we are to remain in television on our present successful scale, it is imperative that each company which has subscribed in the past continue its local sponsorship in the future. It is necessary, too, for new support to come from companies which have not yet participated in this program.

There can be no doubt that there is a continuing need for a strong national sales program for gas. We must continue to build upon the gains we have already made. In order to do this, good business judgment dictates that we extend and expand those gas sales programs which have proved most effective in winning new customers to our product. The progress we have made in the field of sales stimulation through national television ranks this medium as one of the truly great gas sales programs—a program deserving of the continued support of all segments of our industry.

The beautiful new Honolulu Gas Co. building stands as a shrine to the industry in Hawaii. Below, Honolulu Gas employees pose with a gas-powered luau (feast) torch that burned for Hawaiian statehood



Gas men spur industry in Hawaii

A gas-powered luau (feast) torch high atop a hill in Honolulu burned brightly late in February. Called the "Statehood Torch," it was designed to burn "night and day until statehood [for Hawaii] is voted." Coincidentally, the torch burned for still another purpose: to welcome delegates to the first Mid-Pacific Gas Merchandising Conference.

The conference, held from Feb. 24-25 at Honolulu's Hawaiian Village Hotel, was sponsored jointly by the Gas Appliance Society of Hawaii and the Pacific Coast Gas Association.

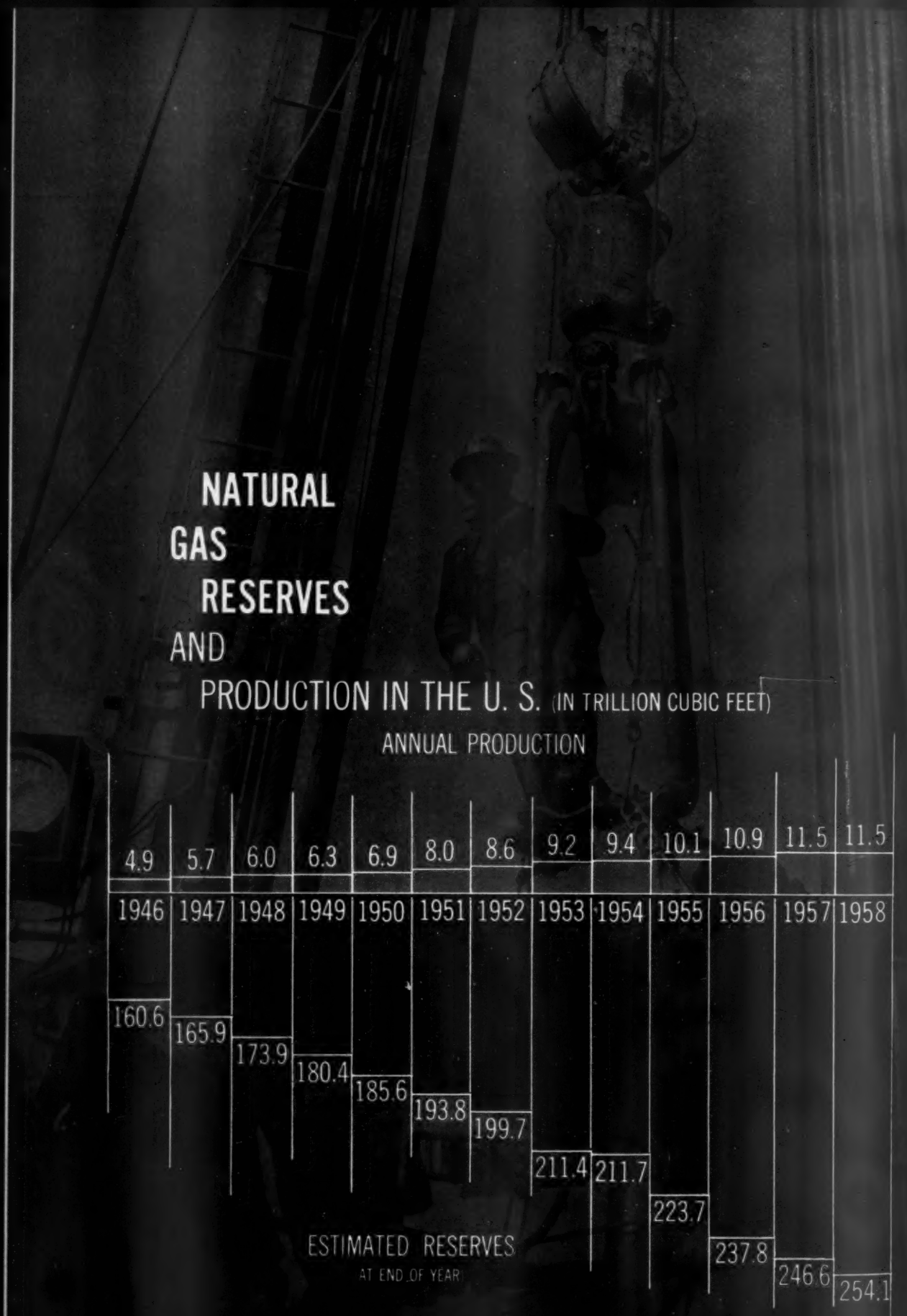
In attendance at the meeting—the purpose of which was to stimulate more interest in gas appliances among local dealers—were some 200 delegates from many parts of the world.

The "Statehood Torch," designed, built and supplied by Honolulu Gas Co., Ltd., is only one of some 2,000 similar gas-powered luau torches in the Islands. The luau torch, which for many years has been Hawaii's symbol of hospitality, was first used with gas in 1954. Since then, this unique appliance—which holds up much better against the strong trade winds than did its kerosene-fired predecessors—has been put into wide use by hotels, restaurants and other commercial establishments, as well as by increasing numbers of home owners.

During the two-day merchandising meeting, talks were given by prominent gas industry executives. On the day following the conference, the delegates visited specially arranged dealer presentations.

Among the speakers at the conference were C. S. Stackpole, managing director, A. G. A.; Robert D. Scott, managing director, Pacific Coast Gas Association; James C. Stopford, president, Honolulu Gas; R. R. Blackburn, president, Pacific Coast Gas Association; and Dr. Gunther Von Kirschner, member of the Organization for European Economic Cooperation, and deputy assistant minister for industry of Berlin.

Others on the program were Howard W. Magnuson, general sales manager, Honolulu Gas; Harold Massey, managing director, Gas Appliance Manufacturers Association; Harold E. Jalass, vice-president, Cribben and Saxton Co.; John Brinker, vice-president, A. O. Smith Corp.; Lee Gray, president, Gas Appliance Society of Hawaii; Leroy Klein, vice-president, Caloric Appliance Corp.; Tyler MacDonald, vice-president, Hixson and Jorgensen Advertising of Los Angeles; and Frank Breckenridge, executive vice-president, O'Keefe and Merritt Co.


NATURAL
GAS
RESERVES
AND
PRODUCTION IN THE U. S. (IN TRILLION CUBIC FEET)
ANNUAL PRODUCTION
4.9
5.7
6.0
6.3
6.9
8.0
8.6
9.2
9.4
10.1
10.9
11.5
11.5
1946
1947
1948
1949
1950
1951
1952
1953
1954
1955
1956
1957
1958
160.6
165.9
173.9
180.4
185.6
193.8
199.7
211.4
211.7
223.7
237.8
246.6
254.1
ESTIMATED RESERVES
AT END OF YEAR

Reserves increase to record high

Proved recoverable reserves of natural gas in the United States increased to an all-time high of more than 254 trillion cubic feet in 1958. This was announced jointly by the Committee on Natural Gas Reserves of the American Gas Association and the American Petroleum Institute.

A net gain of 7.6 trillion cubic feet was achieved during the year, even though net production in 1958 amounted to nearly 11.5 trillion cubic feet, a one-year figure surpassed only by the all-time peak of 11,502 billion cubic feet produced in 1957. These gains are shown in Table 1.

Additions to natural gas reserves during 1958 totaled 19 trillion cubic feet, including 5.6 trillion cubic feet of new discoveries. Extensions and revisions of earlier estimates amounted to 13.4 trillion cubic feet, and an increase of 58 billion cubic feet was reported in underground storage.

The nation's estimated proved recoverable reserves have increased from 173.9 trillion to 254.1 trillion cubic feet since 1948. This net gain of 80.2 trillion cubic feet was recorded despite rapidly increasing demands. Total production during the same period was 92.4 trillion cubic feet.

New discoveries of natural gas liquids reserves in 1958 totaled 108.2 million barrels, second highest in the industry's history. Estimated reserves at year's end totaled 6.2 billion barrels, an increase of nearly 517 million barrels over the 1957 reserves total.

Canadian natural gas reserves, reported annually by the Canadian Petroleum Association, climbed to 23.3 trillion cubic feet last year, compared with 20.7 trillion cubic feet at the end of 1957. Net production of 381 billion cubic feet was reported against reserve additions of 2.9 trillion cubic feet.

Table 3 summarizes the committee's annual estimates of proved natural gas reserves for the past 14 years, reflecting the changes in the natural gas reserve position in the United States during each year since Dec. 31, 1945. Table 4 shows the proved natural gas liquids reserves of the United States for the past 13 years, and the changes which have taken place in these reserves annually since the first estimate was made as of Dec. 31, 1946. Because Alaska is now a state, the gas and natural gas liquids reserves therein will be reviewed by the committee during the coming year.

To arrive at an estimate of the total proved liquid hydrocarbon reserves in the United States, the reserves of natural gas liquids shown in Table 2 have been added to the reserves of crude oil estimated by the Committee on Petroleum Reserves of the American Petroleum Institute. The total liquid hydrocarbon reserves are shown in Table 4.

The committee has continued the practice, begun in the report of Dec. 31, 1948, of reporting, as a part of the proved reserves, the volume of gas in underground storage reservoirs. Since Dec. 31, 1953, these figures have been based on data furnished by the A. G. A. Committee on Underground Storage. Prior to the report of Dec. 31, 1953, the native gas remaining in a storage reservoir, when injection began, was classified and listed, for the most part, as a non-associated natural gas reserve. It was not included in the underground storage figure.

Beginning with the Dec. 31, 1953 report, all gas, including native and stored gas, is included in the underground storage figures. Adjustments in, withdrawals from, or additions to storage are included in the figures shown under the heading "net change in underground storage." Net gas production is the gross production from producing reservoirs less that gas returned to producing reservoirs in cycling and repressuring. Gas withdrawn from storage is not considered as production; likewise no reduction in "net gas production" has been made

COMMITTEE ON NATURAL GAS RESERVES

Ed Parkes (chairman), United Gas Corp.
J. R. Arrington, Carter Oil Co.
W. F. Burke, Lone Star Gas Co.
D. S. Colby, United States Department of the Interior
L. W. Folsom, Mountain Fuel Supply Co.
R. O. Garrett, Texas Gas Exploration Corp.
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E. E. Roth, Columbia Gas System Service Corp.
D. R. Scherer, Southern Natural Gas Co.
J. T. Scopes, Union Producing Co.
C. E. Turner, Phillips Petroleum Co.
M. T. Whitaker, General Petroleum Corp.
Daniel Parson (secretary), American Gas Association

Drilling crew member at exploratory well site of Washington Gas Light Co.'s underground storage project is hoisted aloft to ready drill pipe sections for lowering into hole. (Award winning photo submitted by Robert H. Lewis)

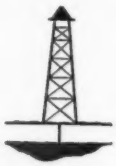
for that part of such production which was injected into underground storage reservoirs.

In view of the great diversity of pressure bases specified by different jurisdictions throughout the United States, attention is drawn to the fact that natural gas reserves esimates published in this and previous reports of this committee have been based on standard conditions of 14.65 psia and 60°F.

The committee pointed out that it is often not possible to estimate the total reserves of a field in the year of its discovery. Satisfactory estimates can be made only after there has been sufficient drilling in the fields, and, in some cases, adequate production history established. For these reasons, the reserves listed as discovered during any current year must be considered only as the reserves indicated by the drilling in that year. The reserves of all fields and pools are reviewed and revised upward or downward in each succeeding annual report to reflect additional information on preceding estimates. These changes are shown as "extensions and revisions."

The procedure followed in estimating and assembling the proved reserves figures is the same as that used in the past reports. A proved reserve may be in either the drilled or undrilled portion of a given field. When the undrilled area is considered proved, it is so related to the developed acreage

(Continued on page 10)



NATURAL GAS

	Dec. 31, 1958	Dec. 31, 1957 (Thousands of Cubic Feet)	Increase 1958 Over 1957
Reserves, Natural Gas	254,142,037,000	246,569,255,000	7,572,782,000
	1958	**1957**	**Decrease 1958 from 1957**
Production, Natural Gas	11,485,026,000	11,502,359,000	17,333,000

The production figures for 1958 are net after deducting the amount of gas returned to reserves for cycling and pressure maintenance.

LIQUID HYDROCARBON RESERVES

RESERVES	Dec. 31, 1958 (Barrels of 42 Gallons)	Dec. 31, 1957	Change 1958 vs. 1957
Crude Oil	30,535,917,000	30,300,405,000	+235,512,000
Natural Gas Liquids	6,204,018,000	5,687,360,000	+516,658,000
Total Liquid Hydrocarbons	36,739,935,000	35,987,765,000	+752,170,000

PRODUCTION	1958 (Barrels of 42 Gallons)	1957	Change 1958 vs. 1957
Crude Oil	2,372,730,000	2,559,044,000	—186,314,000
Natural Gas Liquids	341,548,000	352,364,000	— 10,816,000
Total Liquid Hydrocarbons	2,714,278,000	2,911,408,000	—197,130,000

NATURAL GAS RESERVES

(Thousands of cubic feet—14.65 psia, at 60°F.)

Total proved reserves as of Dec. 31, 1957		246,569,255,000
Extensions and revisions of previous estimates during the year of 1958	13,388,808,000	
New reserves discovered in 1958	5,611,098,000	
Net changes in underground storage during 1958	57,902,000	
Total proved reserves added and net changes in underground storage during 1958		19,057,808,000
Total proved reserves as of Dec. 31, 1957, and additions during 1958		265,627,063,000
Deduct production during 1958		11,485,026,000
Total proved reserves of natural gas as of Dec. 31, 1958		254,142,037,000

Reserves data are shown by states in Table 1.

NATURAL GAS LIQUIDS RESERVES

(Barrels of 42 U. S. gallons)

Total proved reserves as of Dec. 31, 1957		5,687,360,000
Extensions and revisions of previous estimates during the year of 1958	749,956,000	
New reserves discovered in 1958	108,250,000	
Total proved reserves added in 1958		858,206,000
Total proved reserves as of Dec. 31, 1957, and new proved reserves added in 1958		6,545,566,000
Deduct production during 1958		341,548,000
Total proved reserves of natural gas liquids as of Dec. 31, 1958		6,204,018,000

Reserves data are shown by states in Table 2.

TABLE 1

ESTIMATED PROVED RECOVERABLE RESERVES OF NATURAL GAS IN THE UNITED STATES

(Millions of cubic feet—14.65 psia, at 60°F.)

	Changes in reserves during 1958					Reserves[b] as of Dec. 31, 1958				
	Reserves as of Dec. 31, 1957[b] (1)	Extensions and Revisions[b] (2)	Discoveries of New Fields and New Pools in Old Fields[b] (3)	Net Change in Underground Storage[c] (4)	Net Production[d] (5)	Total (Columns 7 + 8 + 9 + 10, also Columns 1 + 2 + 3 + 4 less Column 5) (6)	Non-Associated[e] (7)	Associated[f] (8)	Dissolved[g] (9)	Underground Storage[h] (10)
Arkansas	1,283,022	111,867	36,951	130	43,633	1,388,337	873,753	294,504	215,208	4,872
California[i]	8,952,893	378,066	57,047	15,381	436,865	8,966,522	2,289,218	2,094,070	4,489,429	93,805
Colorado	2,380,679	47,143	52,539	(—)4,676	126,445	2,349,240	1,722,280	108,890	518,070	0
Illinois	166,372	18,877	0	4,299	19,020	170,528	15,700	0	120,800	34,028
Indiana	30,952	4,910	0	(—)1,362	3,931	30,569	1,500	1,500	20,760	6,809
Kansas	19,295,978	1,497,136	27,027	(—)4,391	581,903	20,233,847	19,406,764	455,822	318,454	52,807
Kentucky	1,225,045	45,738	10,930	1,616	68,000	1,215,329	1,125,729	0	69,116	20,484
Louisiana[i]	51,435,954	4,122,570	1,911,124	0	2,357,786	55,111,862	44,317,240	7,549,443	3,245,179	0
Michigan	444,028	56,501	16,188	(—)6,290	12,314	498,113	121,669	51,752	52,875	271,817
Mississippi	2,297,740	408,115	74,627	1,290	183,395	2,598,377	1,849,256	464,568	280,586	3,967
Montana	670,450	297	38,477	2,261	29,472	682,013	511,630	40,660	92,357	37,366
Nebraska	189,339	(—)32,447	1,800	0	15,371	143,321	108,394	12,408	22,519	0
New Mexico	22,258,009	(—)528,926	175,465	100	724,628	21,180,020	15,875,296	3,792,300	1,462,480	49,944
New York	93,382	6,375	1,125	(—)1,344	3,099	96,439	42,398	0	198	53,843
North Dakota	743,432	399,699	0	0	18,661	1,124,470	330,331	0	794,139	0
Ohio	901,814	(—)78,420	13,620	14,913	33,875	818,052	390,000	0	108,000	320,052
Oklahoma	14,259,480	1,698,761	159,370	(—)7,545	903,297	15,206,769	9,647,106	1,950,726	3,514,416	94,521
Pennsylvania	853,595	97,266	22,135	1,992	104,974	870,014	487,135	0	26,965	355,914
Texas[i]	113,084,518	4,598,030	2,799,626	10,519	5,446,950	115,045,743	73,818,891	26,014,719	15,172,873	39,260
Utah	859,294	234,368	2,213	0	37,824	1,058,051	628,085	17,368	412,598	0
Virginia	37,521	2,975	525	0	2,600	38,421	38,421	0	0	0
West Virginia	1,560,930	139,247	30,720	11,136	184,400	1,557,633	1,248,838	0	65,033	243,762
Wyoming	3,457,433	153,864	176,170	1,511	139,160	3,649,818	2,957,347	129,811	542,134	20,526
Miscellaneous[a]	87,395	6,796	3,419	18,362	7,423	108,549	53,549	0	18,907	36,093
TOTAL	246,569,255	13,388,808	5,611,098	57,902	11,485,026	254,142,037	177,860,530	42,978,541	31,563,096	1,739,870

[a] Includes Alabama, Arizona, Florida, Iowa, Maryland and Missouri.
[b] Excludes gas loss due to natural gas liquids recovery.
[c] The net difference between gas stored in and gas withdrawn from underground storage reservoirs, inclusive of adjustments and native gas transferred from other reserves categories.
[d] Net production equals gross withdrawals less gas injected into producing reservoirs. Changes in underground storage and gas loss due to natural gas liquids recovery are excluded. Fourth quarter production estimated in some instances.
[e] Non-associated gas is free gas not in contact with crude oil in the reservoir; and free gas in contact with oil where the production of such gas is not significantly affected by the production of crude oil.
[f] Associated gas is free gas in contact with crude oil in the reservoir where the production of such gas is significantly affected by the production of crude oil.
[g] Dissolved gas is gas in solution with crude oil in the reservoirs.
[h] Gas held in underground reservoirs (including native and net injected gas) for storage purposes.
[i] Includes off-shore reserves.

TABLE 2

ESTIMATED PROVED RECOVERABLE RESERVES OF NATURAL GAS LIQUIDS IN THE UNITED STATES[a]

(Thousands of Barrels of 42 U. S. Gallons)

	Changes in reserves during 1958				Reserves as of Dec. 31, 1958			
	Reserves as of Dec. 31, 1957 (1)	Extensions and Revisions (2)	Discoveries of New Fields and New Pools in Old Fields (3)	Net Production (4)	Total (Columns 6 + 7 + 8, also Columns 1 + 2 + 3 Less Column 4) (5)	Non-Associated (6)	Associated (7)	Dissolved (8)
Arkansas	37,140	(—)659	442	2,773	34,150	4,372	19,190	10,588
California[d]	305,729	24,222	525	28,157	302,319	0	91,267	211,052
Colorado	10,965	11,105	20	822	21,268	2,123	645	18,500
Illinois	11,793	759	0	1,602	10,950	78	0	10,872
Indiana	114	25	0	20	119	8	7	104
Kansas	189,155	15,996	265	5,864	199,552	188,116	8,569	2,867
Kentucky	5,707	33,002	1,501	2,738	37,472	37,472[c]	0	0
Louisiana[d]	1,019,198	181,797	45,361	50,401	1,195,955	976,597	183,428	35,930
Michigan	1,237	287	81	103	1,502	608	259	635
Mississippi	54,401	2,951	890	3,060	55,182	28,032	21,258	5,892
Montana	7,805	6	40	354	7,497	40	0	7,457
Nebraska	7,135	(—)917	0	519	5,699	4,268	643	788
New Mexico	320,548	112,015	1,743	17,068	417,238	297,002	40,137	80,099
North Dakota	22,700	9,847	0	1,308	31,239	14,839	0	16,400
Ohio	1,810	(—)180	0	12	1,618	1,618[c]	0	0
Oklahoma	342,643	41,007	3,442	29,585	357,507	140,492	49,186	167,829
Pennsylvania	3,460	199	99	73	3,685	3,685[c]	0	0
Texas[d]	3,271,617	259,799	50,035	189,484	3,391,967	1,451,945	584,448	1,355,574
Utah	91	14,761	50	3	14,899	149	0	14,750
West Virginia	22,912	41,746	3,249	4,621	63,286	63,286[c]	0	0
Wyoming	51,165	2,182	507	2,978	50,876	16,227	610	34,039
Miscellaneous[b]	35	6	0	3	38	18	0	20
TOTAL	5,687,360	749,956	108,250	341,548	6,204,018	3,230,975	999,647	1,973,396

[a] Includes condensate, natural gasoline and liquefied petroleum gas.
[b] Includes Alabama, Florida and Missouri.
[c] Not allocated by types but occurring principally in the column shown.
[d] Includes off-shore reserves.

TABLE 3
SUMMARY OF ANNUAL ESTIMATES OF NATURAL GAS RESERVES FOR PERIOD DEC. 31, 1945, TO DEC. 31, 1958

(Millions of cubic feet—14.65 psia, at 60°F.)

Year	Natural Gas Added During Year: Extensions and Revisions	Discoveries of New Fields and New Pools in Old Fields	Total of Discoveries, Revisions and Extensions	Net Change in Underground Storage	Net Production During Year	Estimated Proved Reserves as of End of Year	Increase Over Previous Year
1945	—	—	—	—	—	147,789,367	—
1946	a	a	17,729,152	a	4,942,617	160,575,901	12,786,534
1947	7,570,654	3,410,170	10,980,824	a	5,629,811	165,926,914	5,351,013
1948	9,769,483	4,129,089	13,898,572	51,482	6,007,628	173,869,340	7,942,426
1949	8,061,429	4,612,870	12,674,299	82,746	6,245,041	180,381,344	6,512,004
1950	9,172,381	2,877,351	12,049,732	54,301	6,892,678	185,592,699	5,211,355
1951	13,013,606	3,039,385	16,052,991	132,751	7,966,941	193,811,500	8,218,801
1952	8,934,470	5,411,043	14,345,513	198,850	8,639,638	199,716,225	5,904,725
1953	13,371,355	7,081,661	20,453,016	516,431[b]	9,238,540	211,447,132	11,730,907
1954	4,632,309	4,966,894	9,599,203	90,906	9,426,509	211,710,732	263,600
1955	16,298,125	5,719,069	22,017,194	87,637	10,118,118	223,697,445	11,986,713
1956	19,214,604	5,636,476	24,851,080	133,970	10,907,926	237,774,569	14,077,124
1957	11,118,319	8,998,993	20,117,312	179,733	11,502,359	246,569,255	8,794,686
1958	13,388,808	5,611,098	18,999,906	57,902	11,485,026	254,142,037	7,572,782

a Not estimated.
b All native gas in storage reservoirs formerly classified as natural gas reserves is included in this figure.

TABLE 4
SUMMARY OF ANNUAL ESTIMATES OF NATURAL GAS LIQUIDS RESERVES FOR PERIOD DEC. 31, 1946, TO DEC. 31, 1958

(Thousands of barrels of 42 U. S. gallons)

Year	Natural Gas Liquids Added During Year: Extensions and Revisions	Discoveries of New Fields and New Pools in Old Fields	Total of Discoveries, Revisions and Extensions	Net Production During Year	Estimated Proved Reserves as of End of Year	Increase Over Previous Year
1946	—	—	—	129,262	3,163,219	—
1947	192,237	59,301	251,538	160,782	3,253,975	90,756
1948	405,874	64,683	470,557	183,749	3,540,783	286,808
1949	294,211	92,565	386,776	198,547	3,729,012	188,229
1950	707,879	58,183	766,062	227,411	4,267,663	538,651
1951	648,497	75,494	723,991	267,052	4,724,602	456,939
1952	475,170	81,668	556,838	284,789	4,996,651	272,049
1953	648,047	95,922	743,969	302,698	5,437,922	441,271
1954	20,830	86,520	107,350	300,815	5,244,457	(—)193,465
1955	447,160	67,348	514,508	320,400	5,438,565	194,108
1956	715,764	94,056	809,820	346,053	5,902,332	463,767
1957	8,884	128,508	137,392	352,364	5,687,360	(—)214,972
1958	749,956	108,250	858,206	341,548	6,204,018	516,658

(Continued from page 8)

and the known field geology and structure that its productive ability is considered assured. Proved recoverable reserves of natural gas are those reserves estimated to be producible under present operating practices, with no consideration being given to their ultimate use.

Since the estimates are made by pools, the recovery factors or abandonment pressures used in the calculations are governed by the operating conditions in each individual pool. Proved recoverable reserves of natural gas liquids are those contained in the recoverable gas reserves subject to being produced as natural gas liquids by separators or extraction plants, now in operation, under construction or planned for the immediate future.

For purposes of developing reserves estimates, natural gas liquids are defined as those hydrocarbon liquids which, in the reservoir, are either gaseous or in solution with crude oil. They are recoverable as liquids by the processes of condensation or absorption which take place in field separators, scrubbers, gasoline plants, or cycling plants. Natural gasoline, condensate, and liquefied petroleum gases fall in this category. While the liquids so collected and the products derived from them in some of the modern plants are known by a variety of names, they have been grouped together here under the general heading "natural gas liquids."

The estimates presented incorporate the results of carefully detailed studies of many hundreds of fields and pools throughout the United States. Their preparation has required the help and active cooperation of specially trained geologists and engineers familiar with developments in all producing areas throughout the country. The committee is fortunate to have obtained the help of the group of men who have served as subcommittee members.

The committee also acknowledges the helpful cooperation of the Committee on Petroleum Reserves of the American Petroleum Institute, on whose estimates of crude oil reserves the estimates of dissolved gas reserves are based, and the Committee on Underground Storage of the American Gas Association, who supplied the data on which the underground storage figures are based.

President Wolfe will stress research, utilization needs

George M. Nash will serve as the conference chairman

GAMA President E. A. Norman will be conference speaker

J. C. Darrow is chairman of Domestic Gas Research group

G. T. Mullin will deliver conference keynote address

Research is key to gas future

The influence of the research of today on the gas industry of tomorrow will be discussed at the 14th annual A. G. A. Research and Utilization Conference from May 5-7 at the Hotel Carter in Cleveland.

During the conference, speakers will report on current projects in the Association's domestic research program, and will consider various utilization problems.

The conference, which is part of A. G. A.'s PAR program, is sponsored by both the Association's Committee on Domestic Research and its Utilization Bureau. Joe C. Darrow is chairman of the Committee on Domestic Gas Research. G. M. Nash is chairman of the conference.

Among the conference speakers will be J. Theodore Wolfe, president, A. G. A., and president, Baltimore Gas and Electric Co.; E. A. Norman, president, Gas Appliance Manufacturers Association, and president, Norman Products Co.; Arnold Arch, president, Air Pollution Control Association; and G. T. Mullin, president, Minneapolis Gas Co., who will be the keynote speaker.

Some of the subjects on the conference's agenda are A. G. A. gas air conditioning research advances; reports from manufacturers on air conditioning; water heater corrosion studies; latest modifications of recommended installation practices and comparative studies of house heating installations; the pilot service call program; the work of the A. G. A. Laboratories; the linting of the underside of burner ports; the utilization of appliance regulators; the gas refrigerator of tomorrow;

A. G. A.'s most recent service manual developments; the functions of A. G. A.'s Washington Utilization Bureau; energy transformation by means of the thermonics principle; the principle behind the catalytic surface combustion burner; gas incineration; cooking research, including the newly developed research prototype cooking appliance and the flexible connector; and the effects of technical advances in food processing and handling on the future designs of appliances.

Among the participants in the conference will be R. C. Weast, Case Institute of Technology; R. W. Eichorn, Lennox Industries, Inc.; W. R. Sarno and S. F. Wikstrom, A. G. A.; Charles Gamble, Jr., Alabama Gas Corp.; R. S. Marsh, R. S. Curl and Associates; E. C. Ginn, Continental Motors Corp.; and I. E. Rowe, United Gas Corp.

Others on the conference's program will be R. K. Eskew, Arkla Air Conditioning Corp.; K. T. Davis, Bryant Manufacturing Co.; F. E. Hodgdon and J. C. Griffiths, A. G. A.; S. C. Marshall, Minneapolis-Honeywell Regulator Co.; J. D. Preble, Northern Illinois Gas Co.; Mark Ward, Surface Combustion Corp.; J. R. Beccia, The Connecticut Light and Power Co.; P. W. Kraemer, Minneapolis Gas Co.; B. A. Phillips, Whirlpool Corp.; J. H. Dennis, Long Island Lighting Co.; Seward Abbott, A. G. A.; Gerhart Weiss, American Thermocatalytic Corp.; G. N. Hatsopoulos, Thermo Electron Engineering Corp.; Glen Hein, Battelle Memorial Institute; F. E. Vandaveer, Consolidated Natural Gas Co.; O. B. Vogel, Boston Gas Co.; A. L. Brody, Whirlpool Corp.; Leon Ourusoff, Washington Gas Light Co.; W. B. Kirk, A. G. A.; and P. J. Reynolds, Mystic Valley Gas Co.

A tour of the A. G. A. Laboratories in Cleveland has been arranged for conference delegates for May 8.

Registration for the conference will start at 8:30 A.M. on May 5. Pre-registration arrangements, however, can be made now through the Research Bureau at A. G. A. Headquarters in New York City.

Meet your Association staff

Frank E. Hodgdon

Looking for a place to hang his hat "until I found something better," Frank E. (for Ellis) Hodgdon took a "temporary" job in 1939 as a research engineer with the A. G. A. Laboratories in Cleveland.

The "temporary" job has already lasted 20 years.

Today, as director of the Laboratories, Frank heads the gas industry's national gas appliance testing and research centers in Cleveland and Los Angeles. Known nationally as an authority on gas utilization and gas appliance design, he also has made significant contributions to industrial and commercial gas research, as well as to requirements investigations.

Frank is secretary of both the ASA Sectional Committee, Project Z21, A. G. A. Approval Requirements Committee, and the Laboratories Managing Committee. A registered professional engineer in Ohio, he is a member of some 15 other professional and civic organizations in the United States and Canada.

Frank was graduated from Georgia Tech in 1937 with a bachelor of science degree in mechanical engineering. Under pressure, he will confess to having worked one year for General Electric in Fort Wayne, Ind. "But I switched to gas the next year," he is quick to explain.

He laughingly recalls his second "position" with a manufacturer which processed plant oil and gas well casing and drill pipe. "They told me I was to be in charge of 'foreign operations,' " he says. "So when I went to work, they handed me a spray gun and stencil machine. My job: to stencil pipe and load it on freight cars for foreign shipment."

Frank took time out from his research duties in 1942 to serve four years as a communications officer with an anti-aircraft coast artillery unit. He may hold a World War II record for minimum stateside duty. "They sent me sailing for Europe just four days after I entered service."

Returning in 1946, Frank began a rapid climb up the Cleveland ladder. He was named assistant chief research engineer in 1946, chief methods engineer in 1949, and assistant to the Laboratories director in 1952.

Appointment as assistant director came in May 1955, and, just one year later, he was named director of the Cleveland and Los Angeles Laboratories.

Despite his 20 years in Cleveland, Frank still maintains much of his Yankee tradition. Born in Malden, Mass., he favors New England architecture, and lives in an all-gas New England style home at Westlake, Ohio, with his wife, Joan, and three sons, Timothy, five; David, four; and Jonathan, two.

He makes the 30-minute drive from home each day in time to arrive at the office by 7:30 a.m. At home, in a well-equipped basement shop, he spends many hours building model ships. Frank loves sailing, and plans to buy a boat "when the boys grow up."

Frank reminisces that it is perhaps a wonder he didn't became a professional seaman. "Guess I've just got salt water in my blood," he says. His father was the first in a long line of Hodgdons that did not go to sea.

Sea-faring Frank is among the second generation of Hodgdon sons to stay ashore. And what a fine turn of events it was for the gas industry that he did.

Mrs. America: 'A year to remember'

Noted portrait painter Paul Ortlip works on the oil portrait of Mrs. America (Mrs. William Giesse) and her three children in their Mayfield Heights, Ohio, home. Posing with their mother are (l. to r.): Billy, nine; Bobby, two; and Susan, five. The portrait was one of the many prizes awarded to the No. 1 homemaker

Mayfield Heights housewife Mrs. William Giesse will never forget the year 1958-59.

Well-known in her own community for work in social, civic, church and political organizations, she shot into national prominence last May at Fort Lauderdale, Fla. when she was crowned Mrs. America of 1959.

Since then, she has led a whirlwind existence traveling more than 28,000 miles about the United States to appear at conventions, on radio and television, and before civic and community organizations as a special ambassador of the nation's homemakers.

Her face has been on billboards and in advertisements—including full-page color ads in 19 national magazines such as *Life, Ladies Home Journal, Parents, Good Housekeeping, Better Homes and Gardens, The American Home* and *House Beautiful.*

She has shared billings in her more than 100 radio and television appearances with Fran Allison, Cab Calloway, Boris Morris of *Ten Years as a Counter Spy* fame, singer Anita Wood, Don McNeill, Dave Garroway, singer Denis Lor, and Lawrence Welk's champagne lady, Alice Lon.

In addition, the lovely 34-year-old woman, whose chief talents are caring for three small children, cooking and managing a neat six-room white frame house, won $15,000 worth of prizes.

For Mrs. Giesse, the honor has been very time-consuming. She estimates that she has spent an average of three days a week away from home since she was named Mrs. America.

"I feel almost like a commuter between Cleveland and New York," she laughs.

Still, she describes the year as the most exciting months her family has ever known. "It has been trying at times," she admits, "but nothing ever comes up that can't be overcome and taken in stride."

This philosophy, the quiet-mannered, auburn-haired mother believes, stems from the active life the family has always led. It is manifested even in the unassuming attitude her family took when she was named America's outstanding homemaker. Her husband, an account executive with Carr Liggett Advertising Inc., and a Mayfield Heights councilman, was almost blasé.

Mrs. Giesse prepares her nine-year-old son, Billy, for his Cub Scout meeting. Active in community affairs, Mrs. Giesse is a Cub Scout den mother

Returning to Cleveland to be greeted with a parade and civic celebration led by the governor, C. William O'Neill, the Giesses were barraged with questions. Asked what he thought of it all, her husband replied: "I wasn't real surprised. I knew she was a Mrs. America when I married her."

And despite the clamor his friends made for his mother's autograph, nine-year-old Billy remained completely unimpressed until Mrs. Giesse met Jack Kelly, one of the Maverick brothers of television. A picture of Kelly and his mother is now one of his most prized possessions.

Mrs. Giesse admits that her title has disrupted the family's routine, but hastens to add that it isn't as much of a problem as it might seem.

"Bill has been very understanding—and that is necessary for any woman to be a good homemaker—and very helpful."

The duties of Mrs. America did force Mrs. Giesse to curtail her outside activities, although she remained active in "family organizations" such as the Parent-Teacher Association, teaching a Sunday School class, and serving her term as Cub Scout den mother.

"Whenever possible," she adds, "Bill and I continue to reserve Saturday night as our night out together, and Sunday as family-day. I think that being Mrs. America, and being away so much more, has really made me appreciate the family's time together."

Besides Bill, Sr., and Bill, Jr., her family consists of Susan, five, Bobby, two, and the pet collie, Cap'n Sassy.

Looking back over her reign, Mrs. Giesse describes it as "very satisfying."

"It's been very tiring at times. I've given as many as six 45-minute talks in a single day—I've talked to literally thousands of girls in high school assemblies—but it's been well worth it. I think that the most important people are the homemakers and the children.

"And I think it is wonderful for the sponsors of the contest to put such emphasis on the value of homemaking."

Mrs. Giesse considers the two-week national contest in Fort Lauderdale the single highlight of the year.

She vividly recalls the announcement, "Mrs. America of 1959, Mrs. Ohio, Mrs. William Giesse."

"I was stunned, absolutely stunned. I couldn't believe it," she recalls.

Her reign will end where it began. On June 23, at Fort Lauderdale, she will be called upon to crown the new Mrs. America. What are her future plans?

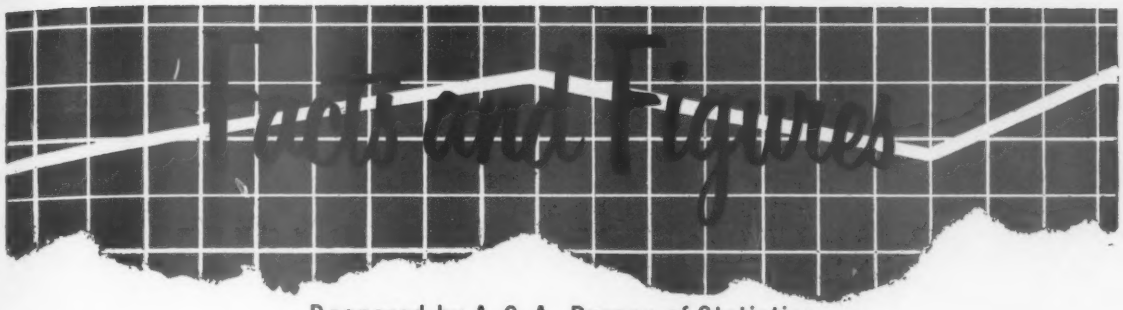
"Right now," she answers, "we're making plans to finish off our second floor and build a recreation room in the basement. It's a do-it-yourself project for Bill and me."

The materials, one of her prizes, will be furnished by Johns-Manville Co. Another prize which will be utilized after June is an expense-paid trip with her husband to Hawaii.

Others which will recall her triumph for years to come are a complete line of gas appliances—a range, a refrigerator, a water heater, and clothes dryer—sterling silver service for 12, an automatic sewing machine, a home organ with built-in stereophonic phonograph and a $2,000 oil portrait of herself and family by noted painter Paul Ortlip.

Northern Illinois honors 'cherry pie queen'

Nancy Safarcyk, a student at Streator (Ill.) Township High School, and Northern Illinois Gas Co.'s "1959 Penny Flame Cherry Pie Baking Queen," offers some of her award-winning pie to Peggy Roeder, the company's home service adviser, while Francis Duffy, the company's Ottawa-Streator district commercial manager, and Mrs. Elizabeth Pickard, Nancy's home economics teacher, watch. Nancy, who won a $400 scholarship toward her college education, was judged best among 57 high school finalists



Prepared by A.G.A. Bureau of Statistics

Gas utility and pipeline industry construction expenditures during the fourth quarter of 1958 hit a record total of $565 million, a 14.6 per cent increase over the $493 million spent in the comparable quarter in 1957. Preliminary estimates for 1958 aggregated $1,803,000,000, the highest total on record.

Anticipated construction expenditures by the gas industry during the first and second quarters of 1959 are $392 million and $545 million, respectively. These figures represent increases of 37.9 per cent and 35.6 per cent, respectively, over the comparable periods of 1958. The 1959 total, based on these estimates, is expected to reach $2 billion.

According to the Securities and Exchange Commission, gas utilities and pipelines will account for nearly 6 per cent of the expected plant and equipment outlays by all industries in 1959.

The United States Department of Labor announced that there were 89,000 new home starts in February 1959. This figure is 34.6 per cent higher than the total for the comparable month in 1958. At a seasonally adjusted rate of 1,320,000, this figure for private housing—which was at the highest level for the month of February since 1955—was 44.3 per cent higher than the 915,000 starts in February 1958.

The gains registered in home building during recent months are continuing to affect shipments of gas ranges, gas-fired central heating units, and automatic water heating equipment. Shipments of these major appliances during February 1959 were higher than the February 1958 shipments by 16.4 per cent, 34.0 per cent and 12.1 per cent, respectively. Sales of gas dryers in January 1959 were 30.7 per cent higher than those in January 1958.

Total gas sales of the gas utility and pipeline industry to ultimate consumers during January 1959 amounted to 10,017 million therms, an increase of 13.8 per

(Continued on page 20)

SALES OF GAS AND ELECTRIC RESIDENTIAL APPLIANCES DURING FEBRUARY 1959

(WITH PER CENT CHANGES FROM THE CORRESPONDING PERIOD OF THE PRIOR YEAR)

RANGES (including built-ins)	February		January	
	Units	Per Cent Change	Units	Per Cent Change
Gas	156,600	+16.4	148,600	+15.7
Electric	n.a.	n.a.	120,800	+10.8
WATER HEATERS				
Gas	242,400	+12.1	254,300	+ 8.0
Electric	n.a.	n.a.	62,800	+ 1.8
GAS HEATING—Total	76,100	+34.0	75,800	+24.9
Furnaces	64,700	+46.4	63,300	+32.7
Boilers	5,700	+11.8	5,700	+ 1.8
Conversion Burners	5,700	—24.0	6,800	— 8.1
OIL-FIRED BURNER INSTALLATIONS	n.a.	n.a.	44,017	— 4.4
DRYERS				
Gas	n.a.	n.a.	39,627	+30.7
Electric	n.a.	n.a.	78,593	+11.5

Source: Gas Appliance Manufacturer's Association, National Electrical Manufacturer's Association, "Fuel Oil and Oil Heat," and American Home Laundry Manufacturer's Association.

GAS SALES TO ULTIMATE CONSUMERS BY UTILITIES AND PIPELINES DURING JANUARY

(MILLIONS OF THERMS)

	1959	1958	Per Cent Change
Month of January			
All types of Gas	10,016.9	8,798.8	+13.8
Natural Gas	9,658.5	8,483.3	+13.9
Other Gases	358.4	315.5	+13.6
Twelve Months Ended Jan. 31			
All types of Gas	80,606.1	77,708.3	+ 3.7
Natural Gas	78,138.7	75,378.1	+ 3.7
Other Gases	2,467.4	2,330.2	+ 5.9
January Index of Monthly Utility Gas Sales (1947-49 = 100)	286.2	251.4	+13.8

PERTINENT BUSINESS INDICATORS, JANUARY

(WITH PER CENT CHANGES FROM CORRESPONDING PERIOD OF THE PRIOR YEAR)

	January			December		
	1959	1958	Per Cent Change	1958	1957	Per Cent Change
Industrial activity (1947-49 = 100)	143	133	+ 7.5	142	135	+ 5.2
Consumer prices (1947-49 = 100)	n.a.	122.3	n.a.	123.7	121.6	+ 1.7
Housing starts, Non-farm (thousands)	86.0	67.9	+26.7	91.0	63.4	+43.5
New private construction expenditures ($ million)	2,603	2,408	+ 8.1	288.7	2,737	+ 5.5
Construction costs (1947-49 = 100)	171.9	164.2	+ 4.7	171.8	164.1	+ 4.7

● *Southern Union and Lone Star plan three-day session that be*

Directors see mighty Texas on Big D tour

J. Lee Johnson, Jr. (l.), vice-president of the Fort Worth, Texas, Chamber of C... Cowboy ... merce, presents a 10-gallon Texas-style Stetson hat to A. G. A. President "Tex" W... huck wa...

Mayor Tom McCann of Fort Worth shows President Wolfe how to wear a 10-gallon h... M. Kindl... The hat was presented to the A. G. A. chief executive after the board mee... ulcy, Mr...

A. G. A. executives and their Texas hosts enjoy a chuck wagon lunch at Jackso... The food was prepared by Walter Jetton, who is called "America's No. 1 outdoor c...

Pardners, there is nothing like a Texas-style tour to help you become better acquainted with the greatness of that state—and the magnitude of its natural gas properties.

Being Texans, executives of Lone Star Gas Co. and Southern Union Gas Co. naturally wanted to expose the A. G. A. Board of Directors to some of the finer things in life. So, the two companies, acting as joint hosts, prepared a three-day session that will long live in the memories of the nation's top gas industry executives.

Headed by A. G. A. President J. Theodore "Tex" Wolfe, who became somewhat of an honorary Texas citizen when he was presented with an attractive Texas-style 10-gallon hat, the 38 board members gathered in Dallas from March 12-14. The 14-member Executive Committee met on March 12, and the board met in full session on March 13. Mr. Wolfe served as chairman for both sessions.

Directors and their wives went on an all-day field trip, sponsored by Lone Star and Southern Union, on March 14, and visited Lone Star's gas distribution, transmission and production properties, and production facilities of Southern Union. Dechard Hulcy, Jr., manager of Lone Star's building management department, was master of ceremonies.

In addition, directors were guests at a reception and dinner on March 12 at

(Continued on page 18)

... be remembered by the nation's top gas industry executives

...owboy cooks for Walter Jetton of Fort Worth serve ...uck wagon lunch, all of which was cooked outdoors

Lone Star Gas Co. President and Mrs. L. T. Potter pause during visit to Springtown

C. H. Zachry, Mr. Wiederkehr, C. S. Stackpole and N. B. Bertolette (l. to r.) confer during the tour

...M. Kindle, Mrs. E. A. Brown, W. C. Gorman, Jr., D. A. ...ulcy, Mrs. J. C. Darrow (l. to r.) chat during tour

President Wolfe shows his honorary Texas citizenship certificate to (l. to r.) A. P. Rowland, Lone Star vice-president, Mayor McCann and Mr. Johnson after formal presentation ceremony in Fort Worth

The line at the chuck wagon lunch counter includes (l. to r.) Mr. Wolfe, Mr. and Mrs. Brown, and Mr. Hulcy

President Wolfe (holding hat) and Mrs. Wolfe (at his left) tour drilling floor of Southern Union's No. 3 Crystelle Waggoner well, which is located in Wise County

the Dallas Petroleum Club. Hosts were the Texas Mid-Continent Oil and Gas Association, the General Mid-Continent Oil and Gas Association, and the Independent Petroleum Association of America. On the same evening, the ladies were guests of Lone Star and Southern Union at a dinner.

Other social events included a luncheon for directors on March 13 at the Petroleum Club, with the Southern Gas Association as host; a ladies luncheon on the terrace of the world-famous Neiman-Marcus Zodiac Room on March 13, under the sponsorship of Southern Union and Lone Star; and a fiesta dinner for board members and their wives and guests that evening, with Lone Star and Southern Union again acting as hosts.

On March 14, the group boarded a Greyhound Scenicruiser to see, as the host companies promised, "a bit of Texas, and maybe a cowboy or two."

The bus headed out of downtown Dallas to the Dallas-Fort Worth Turnpike. Along the turnpike, Joe Darrow, vice-president of Lone Star's distribution division, answered questions about the companies' distribution properties in the metropolitan area encompassing the two cities.

The tour's first stop was at Lone Star's Springtown gasoline plant, a typical example of the 12 gasoline plants located over the Lone Star system. J. M. Kindle, vice-president of Lone Star's transmission division, outlined interesting aspects of the plant's operations. E. A. Brown, executive vice-president-operations, and Carl M. Hill, vice-president-exploration and gas supply, described Lone Star's underground storage facilities and the development of the prolific Bend conglomerate producing horizon.

During the Springtown stop, Julia Hunter, director of Lone Star's home economics department, served refreshments.

The second stop was at a Lone Star compressor station near Jacksboro. The station is one of 35 such properties operated by the company.

Chow time arrived, but there were no box lunches served on this tour. Instead, the group was treated to a real Texas chuck wagon feast. Walter Jetton of Fort Worth—named "America's No. 1 outdoor chef" by the *Saturday Evening Post*—and his cowhands prepared and served the meal.

The tour was continued after lunch to a point five miles southeast of Decatur in Wise County, where a 6,500-foot test well is being drilled by Southern Union. The group also visited a nearby Southern Union producing well. A. M. Wiederkehr, manager of Southern Union's exploration department, explained his company's drilling and production activities in that area.

The tour ended with a return trip to Texas' proudest city, Big D.

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What A. G. A. offers the accountant

By CHARLES D. OTCASEK

Supervisor
Machine Accounting Development
The East Ohio Gas Co.

One day, as I was looking out the window, watching the snow, listening to the wind, and realizing that the temperature was below zero, I stopped to consider how confident everybody is that our company will supply the gas required to heat his home, cook his food, heat his water, and keep the wheels of industry moving.

How many people are aware of the numerous resources, number of personnel, and varied operations necessary to supply this gas? How many people are aware of the roles played by the geologist, the driller, the pipeliner, the transmission systems, the compressor stations, the operating and distribution systems?

Notice that I omitted the accounting department, even though it is closest to me: I have worked in accounting for 37 years with one company.

In 1922, I joined the company as a Boston ledger clerk. Under the system used then, the mechanical data processor was the human body. All information was entered with pen and ink: computations (made mentally), statistical information, reading dates, meter readings, and usage for customer bills were all entered by hand.

Today, almost all utilities use some form of mechanical equipment. Many use the so-called electronic giants, whose computing and processing speeds seem unbelievable.

While reminiscing, I thought back over the years of progress of our systems for utility billing and accounting. In 37 years, I have seen many radical changes; and have had a hand in many of them.

The designs for new accounting systems and procedures are not the results of the planning of one man; rather, they are the results of the cooperative efforts of many people and, often, of many companies.

I can remember how, when a problem confronted us, one of my first thoughts was "Who in the utility industry had this problem and what did he do about it?"

Names of various companies, and of men working for them, came to mind; and, via the telephone or a letter, I was able to obtain the information I needed. At times, when a problem required further evaluation, arrangements were made for visits to other companies, in order to view their operations and to discuss the problem with their personnel.

Many times, this outside help was instrumental in the design of a new procedure, or in the solution of a problem. I appreciated this help, and I fully realized how fortunate I am to be able to obtain such assistance from "friends."

As I reminisced, however, I had to stop and think: How did I acquire these "friends?"

Some 12 years ago, my company selected me as a member of A. G. A. I was subsequently invited to attend the organizational meeting of the Association's Accounting Section. I did so—but with mixed feelings. Meeting with such a large group of men with years of accounting experience was a challenge. I began to wonder: What could I gain? What could I contribute?

Some of my company's employees were already A. G. A. members, and they introduced me to people at the meeting. I have never forgotten the wonderful way in which a newcomer is taken in hand by all the members, or how he is immediately made to feel that he is needed by A. G. A., not only for himself, but also for the help he may be able to give to the industry.

Since I had experience in customer accounting activities, I was assigned to the Customer Accounting Committee. Some of the functions of this committee are to select several of the most current pressing problems, to assign these problems to project committees for study, and to present the results of these studies in committee reports throughout the year or in papers at the spring conference.

These projects, in the course of a few years, cover most of the problems in customer accounting activities. A member who participates for several years is assigned to a different project each year.

Each project selected has assigned to it several members who must develop a paper or manual presenting, as possible solutions, methods and procedures from various companies throughout the industry. As a result, all participants attending the spring conference can hear reports on, and enter into discussions about, the various projects considered during the year. Copies of the project papers and manuals are available, and they are collected by many for future use as reference materials.

To sum all this up I believe the specific reasons which have made it valuable for me to be a member of A. G. A. are:

- I have been able to meet, and make

friends of, men whose experience is most helpful to both me and my company.

• I have been able to be a participant in group discussions which have broadened my knowledge of utility methods and procedures.

• My work on various projects has enabled me to learn how other companies handle their problems.

• My participation in meetings and projects has given me the opportunity to observe, and to learn how to handle, a large group of men; to assign responsibilities; to realize fully the value of cooperation; and to acquire leadership values.

• The contacts I have made, and the experience I have gained have greatly increased my knowledge and, in turn, have made me more valuable to my company.

The types of activity offered by A. G. A. are good training for young men whose performances show that they have management qualities. Further, I believe that present management has an obligation to give its employees the effective tools which will enable them to develop into future management.

One of these tools can be membership in A. G. A. I say "can be," because that membership is not an effective tool unless the member is an active participant —a project member, a project chairman, a committee chairman.

An active A. G. A. participant will make industry friends, and will learn how other utilities operate with methods and procedures. He will have at his disposal a "lifeline" which he can use when he or his company encounters a problem requiring immediate solution. He will have at his fingertips the greatest array of utility talent and experience available. And he will have with him always the satisfactions and rewards he has derived from being a participating member of A. G. A.

Rochester Gas develops meter-gas light post combination

A two-birds-with-one-stone installation plan which places the residential gas meter at the base of an exterior gas light post has been developed by the Rochester Gas and Electric Corp., Rochester, N. Y.

The arrangement, worked out by engineers under the direction of Frederick J. Pfluke, general superintendent of the utility's gas division, permits meter reading without entering the home, and without depending on such alternatives as exposed meters on the outside of the dwelling, or a window to permit the reader to see the meter inside the building.

A small, inconspicuous window at the base of the lamp permits reading the meter dial.

A test installation has been made in front of a house under construction in Rochester, with the post-mounted gas light to be added when the dwelling is completed. In some cases, according to Mr. Pfluke, it may be possible to route gas supply lines through back yards to permit the meter-gas light combination there, and also to have a readily available fuel supply for other gas appliances to be used outdoors.

A number of gas barbecue grills now are available or are being readied for this summer's markets. Additionally, an industry committee is considering installation standards for gas incinerators outdoors.

Inexpensive installation techniques utilizing copper tubing have been developed for gas lights and grills located outdoors and connected to the gas supply in the dwelling. Arrangements such as the Rochester utility's are seen as making it still easier for gas utility customers to use the fuel outdoors.

Mr. Pfluke points out that the proposed combination of gas lamp and meter-regulator is subject to a number of variations. Basically, it involves an underground watertight housing with a gasketed plate on top to which the meter base is attached.

It is a simple matter, he explains, to raise the base and change the meter without disturbing the lamp.

One proposed arrangement at Rochester includes a shutoff valve and a primary pressure reducer to cut the inlet pressure to approximately five pounds. The meter incorporates a second stage of regulation that reduces the pressure from five pounds per square inch to the low pressure of approximately six inches water column, at which gas is utilized in the home.

The connection to the gas light comes off a reducing tee at the top of the meter, and it is a simple matter to provide connections for outdoor appliances.

Weather conditions and the type of gas distributed would be among the considerations determining whether the arrangement would be practical for any particular utility. In the case of the Rochester utility, dry natural gas presents no moisture problem.

Home builders and others in the utility's territory are showing much interest in decorative gas lighting.

A mantle-equipped gas lamp, allowed to burn 24 hours a day, is calculated to involve fuel charges of about $1.85 per month for Rochester area residential customers using gas for space heating, and approximately $3 per month for other householders.

Facts and Figures

(Continued from page 15)

cent over the 8,799 million therms sold in January 1958.

This increase in gas sales can be attributed to the greater number of new gas customers, the colder weather experienced throughout most of the country, and the greater use of gas by industrial customers.

Sales of gas for industrial use increased from 3,162 million therms to 3,333 million therms, a 5.4 per cent increase over 1958. Industrial production, as measured by the Federal Reserve Board index, was up 7.5 per cent over January 1958. The index of industrial production (1947-1949 = 100) for January 1959 was 143, up 10 points above January 1958. A. G. A.'s index of gas utility and pipeline sales was 286.2 (1947-1949 = 100).

During the 12 months ended Jan. 31, 1959, total utility and pipeline sales of gas aggregated 80,606 million therms, equivalent to an increase of 3.7 per cent over the 77,708 million therms consumed in the 12 months ended Jan. 31, 1958.

Management prepares for future

Gas leaders study industry's major problems

MARVIN CHANDLER, *CHAIRMAN* • OTTO W. MANZ, JR., *VICE-CHAIRMAN*

"Four Men in a Boat," title of an opening session talk by Frank C. Smith (l.), might also be the title of this photo, for these four speakers headlined the first day's activity at the General Management conference. Meeting with Mr. Smith (l. to r.) are: Donald M. Graham, Marvin Chandler, and J. Theodore Wolfe. A. G. A. President Wolfe was the featured speaker at the opening luncheon

Management leaders are taking a new, farther-sighted approach to the most challenging problems facing the gas industry. This fact was reflected by the broad range of topics discussed during the fifth annual General Management Section Conference held from March 2-4 in Cleveland's Statler-Hilton Hotel.

Most states, and some sections of Canada, were represented among the 300 delegates who attended the meeting. The Arrangements Committee, headed by Otto W. Manz, Jr., Section vice-chairman, presented a well rounded program which included talks on gas industry financing, labor relations, organizational policies, control of overhead costs, and the economic outlook.

Frank C. Smith, former A. G. A. president, and chairman of the board, Houston Natural Gas Corp., and Donald M. Graham, vice-president, Continental Illinois National Bank and Trust Co. of Chicago, were the principal speakers at the opening general session.

The conference was opened by Marvin Chandler, Section chairman, and president, Northern Illinois Gas Co.

Mr. Smith, whose topic was "Four Men in a Boat," described the unique potentials of the American gas industry, and compared our industry with the gas industry in Europe.

"Our future can only be one of progress," he stated. "The gas industry has survived every recession, inflation, and war since its beginning, and, all the time, has faced burdensome taxation."

Mr. Smith said that, while attending the International Gas Union in Rome last year, he found the European gas industry quite different from ours, despite common problems. "This," he said, "is due to the heavy hand of state ownership and management in Europe, however cleverly utilized by men of great ability."

Mr. Smith listed three basic problems facing the gas industry in America:

1. The ever present problems of developing new uses, and of improving accepted uses, of gas.

2. The problem of saturating the American home market with gas for all functions.

3. A lack of cohesiveness and unity of purpose between the elements of the gas industry which, he said, throws a heavy roadblock in the way of progress, and brings about a lack of understanding between industry segments.

Mr. Smith called the industry's four segments "Four Men in a Boat," and compared them to the well known story, "Three Men in a Boat." In this story, the men, each with equal independence, were forced to cooperate in order to make a successful journey in a boat.

"The gas industry segments—producers, distributors, pipeliners, and manufacturers—also are in a boat together," he said, "and cooperation is essential if we are to achieve our ultimate potential."

Mr. Graham described four methods by which commercial bankers can better

John H. Carson (l.), vice-president, The East Ohio Gas Co., greets Republic Steel President T. F. Patton, final luncheon speaker. Mr. Patton said he was "hopeful but not optimistic about steel strike"

Robert G. Olmsted (l.) presided over a panel which discussed convertible securities, their advantages and disadvantages. Panel members were A. W. Whittlesey and E. J. How

Management development was discussed by this panel. Seated (l. to r.) D. W. Sargent, Frank C. McKay, and John Haman. Standing (l. to r.) John S. Solan and J. O. Grantham

serve the gas industry: interim construction loans, financing of purchases of gas for storage, installment sales financing, and financing the acquisition of gas reserves.

A. G. A. President J. Theodore Wolfe spoke at the Monday luncheon on "What's Hot About Gas?"

Mr. Wolfe, president, Baltimore Gas and Electric Co., said that the gas industry can expect to have nearly 12 million new customers by 1970. In the past 10 years, he said, customers increased by 39 per cent to more than 32 million.

Industry studies forecast both a total of 43.7 million customers, and a rise in gross revenues from the present $4.6 billion to more than $10 billion, by 1970.

To keep pace with this growth, Mr. Wolfe said, the industry will have to overcome five major problems: financing, regulation, research, competition, and gas supply.

At the Tuesday general session, presided over by Mr. Manz—who is executive vice-president of Consolidated Edison Co. of New York, Inc.—Richard F. Neuschel, Dr. Ernest Dale, and Herman L. Fruechtenicht were the featured speakers.

Mr. Neuschel, who discussed "The Long, Hard Fight To Control Overhead Costs," is a principal of McKinsey and Co., New York business consultants. Dr. Dale is associate professor of economics and business administration at Cornell University. Mr. Fruechtenicht is director of gas procurement and development for Consumers Power Co. Dr. Dale's topic was "Organization: Its Uses and Abuses." Mr. Fruechtenicht spoke on "The Underground Movement in the Gas Industry."

Despite widespread efforts to control costs, Mr. Neuschel said, nine out of 10 companies have failed so far either to show any appreciable reduction of overhead costs or to provide the basis for improving them in the future.

Why is this so? Mr. Neuschel believes there are four major roadblocks to the effective control of overhead costs. These barriers are:

1. The illusion that overhead costs are controlled through budgets.
2. The failure to appreciate the tremendous savings potential in this area.
3. The lack of a hard-boiled profit-consciousness among most of the heads of functional segments of the business.
4. The failure to tackle overhead cost reduction and control in a fundamental way.

Mr. Neuschel warned that gas industry management should not assume that most of the cost reduction opportunities "in your operation have already been identified and exploited." If this were true, he said, then the gas industry would, indeed, be unique.

Management, Mr. Neuschel continued, must "discipline itself to realize that cost cutting is not a popular move, and that sizable savings cannot be obtained easily." Management must also persuade operating supervisors to want

n L. Kennedy (l.), Rochester Gas and Electric, introduced Donald J. ller, Public Service Co. of Colorado, who addressed safety luncheon

Mr. Manz (l.), who presided at Wednesday's general session, gets together with others on the program. They are (l. to r.) John D. Wilson, Lee C. Shaw, and Elmer L. Ramsey

esday general session speakers were (l. to r.) Dr. Ernest Dale, Otto . Manz, Jr., who presided, R. F. Neuschel, and Herman L. Fruechtenicht

Seated at the Monday luncheon table are (l. to r.) B. T. Franck, John L. Kennedy, William Tippy and R. G. Olmsted. Standing are William Loving (l.) and Marvin Travis

to cut their costs, rather than to build them up, he said.

Dr. Dale said that probably the most important single need in today's organization is for freedom of expression on the basic problems of business. "The existence of this appears to be the only effective guarantee against conformity, ingrowth and senile decline of management," he said.

"What is required in today's business is an atmosphere of freedom within management, flexibility of organization structure, harmonious staff-line relationships, and reward for originality and sticking one's neck out," he added.

Dr. Dale said that there is a need to escape the organizational strait jackets in which men who are inadequate tend to be stretched to fit the box, and in which men who are contributing nonconformists are shrunk to fit. He said, also, that new technology may require new forms of organization.

"The future will undoubtedly witness a greater role for the technically trained man in top management," he said. "This is partly due to rapidly changing technology, partly because of influence of the scientist in management, and partly because the needs of automated equipment will raise the status of the technically trained man."

Mr. Fruechtenicht told the story of an "underground movement in the gas industry." He said that the more than 200 storage pools in this country—which are located in only 19 states—now have a capacity equal to about 17 per cent of the gas used in a year. The majority of such underground pools, he said, were formerly gas producing fields into which gas is now piped and stored under pressure.

Storage reservoirs, Mr. Fruechtenicht explained, vary in size from 700 million cubic feet of gas to 100 billion cubic feet. Depths range from a few hundred feet to a mile, he said.

Three different luncheon meetings were held on Tuesday. Dwight S. Sargent, personnel director, Consolidated Edison Co. of New York, Inc., spoke before the Personnel Committee. His topic was "What Is the Gas Industry Doing About Management Development?" Donald J. Miller, vice-president-gas operations, Public Service Co. of Colorado, spoke at the luncheon conducted by the Accident Prevention, Insurance, and Claims Agents Committees. His subject was "Safety Is Management's Business." Donald H. Lyons, director of purchasing, Johns-Manville Corp., addressed the Purchasing and Stores Committee. His talk was on "Creative Purchasing in a Rapidly Changing Economy."

Mr. Sargent described the data gathered through a questionnaire which asked 50 gas companies about their management development programs. The answers, he said, ranged from "no program at all" to a particularly complete program which is designed to provide the company with capable top management for many years to come.

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Industrial relations round-table

Prepared by
A. G. A. Personnel Committee

Edited by W. T. Simmons
Assistant Personnel Manager
Philadelphia Electric Co.

● **Increased productivity through incentive plans**—A nationwide survey of 17 management consulting firms reveals that wage incentive plans have increased productivity in 29 different industries by an average of 63.5 per cent. The information was gathered by George Elliott Co., Inc., New York, in a survey completed last November.

Further survey information shows that employee earnings in the 29 industries increased by an average of 20.6 per cent. At the same time, as a result of the incentive programs, the companies realized an average savings in unit labor costs of 25.9 per cent. The tabulations represent 2,500 wage incentive plans installed by the 17 management consulting firms in every section of the country. Seventy-seven per cent of these plans were installed since 1948.

John D. Dale, president of George Elliott, says that the averages show that, for every 1 per cent increase in wages earned by the worker, the aggregate companies increased their productivity by 3.1 per cent and reduced their unit labor costs by 1¼ per cent. Mr. Dale cites these facts as reasons for believing that "wage incentives are the best hedge against inflationary wage increases which are often granted without regard to productivity increase."

● **Productivity formula is called a myth based on stone-age definition**—The productivity formula, described as a myth based on a stone-age definition of productivity, came under heavy attack at the American Management Association's personnel conference in February.

The attack was made by J. Howell Turner, director, employee relations department, Standard Oil of Indiana, in a speech on wages and productivity. The productivity concept, he said, as it is currently used in some circles in private industry, holds a vast potential for further accelerating inflation.

One way in which management can make sure that its policies do not feed inflation, Mr. Turner said, is to put a lasting end to the myth of the productivity formula. This formula, he added, sounds wonderfully simple and delightfully innocuous; it is, however, as foolish and as dangerous as any proposal to try to spend our way to stability by means of new federal handouts.

Productivity itself is a major national asset, said Mr. Turner. As a result of the increase in productivity through technical advance, the average American now works some 15 per cent fewer hours than he did in 1930; his purchasing power, however, has risen by 50 per cent.

It is important to make sure that the benefits of increased productivity are shared fairly by all segments of the population. Therefore, it is easy to understand why many people have tried to work out a formula which can give an exact measurement of changes in productivity. What is not easy to understand, however, and what is even shocking, Mr. Turner said, is the effort by some individuals within the ranks of management to pretend that they have found the formula.

No desire to lessen the tensions at the bargaining table can possibly excuse management from facing the hard facts about the productivity formula, Mr. Turner emphasized. Those facts, he explained, are that there is no formula which can accurately measure productivity, and there probably never will be such a formula; that the "stone-age" definition which labor leaders have adopted is grossly inaccurate; and that the inevitable consequence of the effort to prescribe wages on the basis of this formula is the encouragement of destructive inflation.

Mr. Turner concluded that there is no satisfactory alternative to the tough job of facing up yearly to some extremely practical questions. At least four such questions must be confronted realistically by management, he said. These questions are (1) What are the personnel needs in the company? (2) How available are the skills needed by the company in the current labor market? (3) How do the company's rates compare with those paid by other local employers, and are these rates adequate to insure the necessary competence of workers? (4) What can the company's sales volume, prices, competition, and profits afford in the light of these considerations?

● **Eight weeks off a year with pay**—A well known Midwest gas company reported to its employees that, in line with studies made by other utilities, it had recently conducted its own survey of time off. The survey showed that time-off pay allowances constitute only a portion of the fringe benefits available, and that each employee averages about eight weeks per year away from his job, while being paid an average of more than $786 in wages for that time.

Here is how the figures average out for a year:

1. Coffee break—$287.58. Each employee actually spends more time out getting a cup of coffee each year than he does on taking a vacation.

2. Vacation—$235.37. Two weeks of paid vacation for each year of service up to 10 years. Three weeks of vacation from 10 years up to 20 years. Four weeks of vacation for 20 years or more.

3. Holidays—$138.56. Each employee receives eight hours of straight time pay for each of seven holidays.

4. Sick leave—$122.15. Under the sick leave plan, an employee is paid straight time for the first five scheduled days. Thereafter, he is paid for 90 per cent of his scheduled work hours, until his sick leave credit has been exhausted. Each employee is now absent an average of 46.72 hours per year because of personal illness, and 4.38 hours because of family sickness or death.

5. Military training and jury duty—$2.54.

● **Scholastic sleuths**—College students guard the plant for General Aniline and Film Corp., Linden, N. J. The students sparkle in their new navy blue uniforms. They excel in their efficiency and courtesy. Their fine attendance records are a welcome change from the poor records which once plagued the company's force.

Assigned to shifts which fit their scholastic schedules, the students like their jobs as much as the company likes having the students.

● **NLRB rulings: NLRB approves new pay check propaganda stunt**—The technique of using pay check deduction cards to get across an anti-union message before a representation election had an added touch of realism when an employer actually deducted $3 from each employee's pay in order to drive home the point that this is what unionism would cost the worker each month.

And, like the employers who have not gone quite that far in using payroll propaganda to combat union organizing, the company which used the deduction gimmick suffered no penalty from the National Labor Relations Board. A Leedom-Bean-Jenkins Board panel found that the deduction, which was returned to employees in separate envelopes containing anti-union propaganda, did not interfere with a free choice by employees in an election lost by Lodge 1988 of the International Association of Machinists (IAM) at Geyer Manufacturing Co. (division of Wood Shovel and Tool Co.), Chicago, Ill.

About a week before the election, which IAM lost by a vote of 34 to 14, Geyer deducted $3 from each employee's pay check. The company then returned the $3 in a separate envelope which included the following message: "The union wants us to take this $3 out of your check each month and send it to them."

IAM objected to both the use of the dues-deduction tactic, and to letters sent by the employer to the employees. As stated by the NLRB panel, IAM's objections were "(1) that the employees were not in a position to appraise the truth or falsity

(Continued on page 25)

Air conditioning sales school set

The first Gas Air Conditioning Sales School will be held from June 1-5 at the Baker Hotel in Dallas, Texas.

Sponsored by the Air Conditioning and Heating Committee of A. G. A.'s Industrial and Commercial Gas Section, the school is another facet of the Section's program to gain a larger share of the summer air conditioning load.

According to members of the committee, the purpose of the school is to make air conditioning salesmen more fully acquainted with the workings and advantages of the various types and sizes of gas cooling equipment. Better informed salesmen, the committee contends, will be more persuasive salesmen, and will, as a result, be able to sell more gas equipment throughout the country.

Two of the subjects which will be discussed at the sales school are the basic elements of an air conditioning system, including the mechanics of refrigeration, the air handling equipment and controls, and the uses of various accessories; and the fundamentals of reciprocating and centrifugal compressor systems, including common refrigerants and typical compressor problems.

In addition, there will be talks on the gas engine, its suitability for air conditioning installations, its control characteristics, its fuel consumption, and pointers about its application engineering; and steam turbines, their adaptation to air conditioning systems, their limitations and advantages, an analysis of the steam pressures most suitable for turbine operations, data about typical steam consumption, and new developments in package equipment.

Other topics on the agenda are the principles and performance characteristics of the absorption refrigeration system; absorption systems, including engineering application, multiple machine installations, operating characteristics, sales advantages, limitations, specifications, and steam consumption; and humidity control by liquid absorption, including the fundamentals of liquid absorption and the open absorption cycle.

Delegates to the sales school will also hear discussions of humidity control by dry adsorption, including a description of equipment and suitable applications; and market opportunities for small commercial applications, including details about sales programs, promotion methods, sales and service policies, subsidies, and dealer relations.

Additional subjects will be the factors favoring gas, including a discussion of the disadvantages of electric equipment; commercial kitchen cooling and ventilation; construction problems of large air conditioning installations; the electric heat pump as competition, including a comparison between electric and gas heat pumps; the results of a Dupont study on the market opportunities for industrial and commercial air conditioning equipment; and recommended sales and promotion activities.

A highlight of the sales school will be a full-day field trip, designed to give the salesmen a close look at the operations of the products they sell. The salesmen will observe a steam turbine-driven unit, absorption units, a 25-ton water chiller, and a gas engine-driven unit.

Attendance at the sales school is limited to 150 delegates. The registration fee for the five days is $50, which will include a dinner, a presentation by Minneapolis-Honeywell Regulator Co. on the "Economics of Air Conditioning," and a luncheon.

Further information is available from Ralbern H. Murray at American Gas Association Headquarters in New York City.

Industrial relations

(Continued from page 24)

of the statements contained in the employer's letters which . . . were false, slanderous, and misleading; (2) that the Board should not condone the deduction of monies from the employees' pay checks without authorization by the employees; and (3) that by returning the deducted money to the employees in a separate envelope which contained anti-union propaganda the employer compelled its employees to accept and read anti-union propaganda which contained a deliberate falsehood."

In dismissing the objections to the employer's conduct, the NLRB found no forgery in newspaper articles included in the firm's propaganda, and said that the company's letters could not be considered factually false. The dues deductions may have amounted to campaign trickery, said the Board, but the employees should have been able to evaluate for themselves what the stunt was worth.

In disposing of the argument that employees were compelled to read the anti-union literature in the envelopes which returned the deductions, the Board said: "The statements complained of are obvious propaganda, clearly recognizable as such by employees presumably competent properly to evaluate it."

Furnace offers industry new heating device

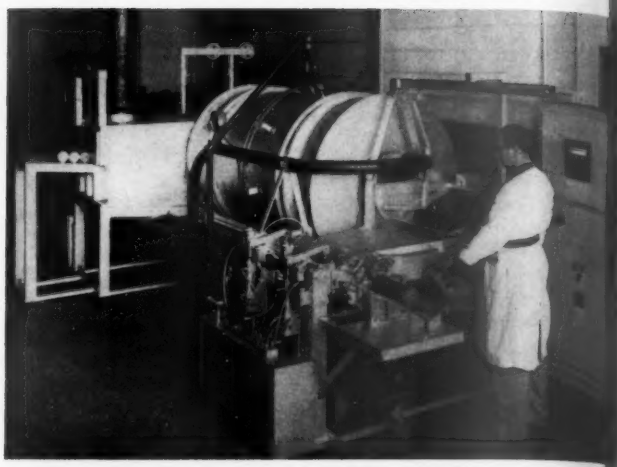

Fig. 1: A glass bath furnace built and operated at the Bal-Tate plant

By DR. DI GIULIO

President
Bal-Tate Furnace Co.
Ferndale, Mich.

The Bal-Tate Furnace Co. is manufacturing a new type of furnace which produces many tons of extruded shapes, and which can be used in operations, such as forging, hot forming, and high temperature thermal treating of special metals and alloys.

The new furnace, known as the glass bath furnace, utilizes two very economical materials: gas as a heating medium, and glass as a chemical agent. In this instance, glass is performing many new functions.

The furnace was first built in Milan, Italy. It offers a heating device heretofore unavailable to American industries.

To appraise its usefulness, we need only to review the equipment now available. Fig. 1 lists the operating range of the various furnaces in use, and, for temperature up to and around 1,800 degrees F., we have a great variety of equipment which satisfactorily carries on heating for metal treating.

The next zone of operation extends from about 1,800 degrees F. to approximately 2,300 degrees F. In this zone, we find that:

1. Some present equipment becomes inoperative, or too expensive to operate, primarily because of the ever-important oxidation of materials that occur.

2. Induction and other electric furnaces necessitate special atmospheres, thus adding to the already high cost of operation.

3. Salt bath furnaces are used, but their cost of operation becomes almost prohibitive. This is because the chemical reactions (the breakdown of the salt) create serious problems due to fuming of the chloride salts used. Hence, about 2,250 degrees F. constitutes their upper operating limit.

Gas-fired furnaces, such as those used in many forging operations, attain proper temperatures, but result in undue scaling. Because of these reasons, when the newer metals and alloys such as molybdenum and columbium are used, present equipment is inadequate to carry on economical heating to temperatures above 2,300 degrees F.

The glass bath furnace can be used within the temperature ranges mentioned without fear of oxidation. It has the added advantages of an efficient rate of heating, and the removal of scale present on the surface of the billets.

Fig. 1 shows a Bal-Tate glass bath furnace built and operated in the Bal-Tate plant in Royal Oak, Mich. Fig. 3 is a schematic view of the furnace and recuperator.

To evaluate the furnace, you need only to review actual production data, accumulated through several years of operation, in the making of some 5,000 different extruded shapes such as tubes and solids of simple and intricate contours.

Table 1 illustrates the great variety of shapes and compositions now being produced, and shows that alloy steels of the austenitic type are successfully extruded after being heated to the indicated temperatures in the glass bath furnace.

Table 1 also emphasizes the speeds, ranging from nine to 18 feet per second, with which these extrusions are carried out. Speeds are attained by using dies with, not only one, but, in some cases, with two or three cavities. In all cases, the dimensional accuracy of the extruded shape is far superior to that which can be obtained in any other hot forming operation.

Decarburization occurs in most forging operations. However, the glass bath furnace has eliminated this danger. Metallographic checks carried out at a cus-

(Excerpts from a paper presented by Dr. Di Giulio before the Midwest Industrial Gas Council in Chicago on Feb. 6.)

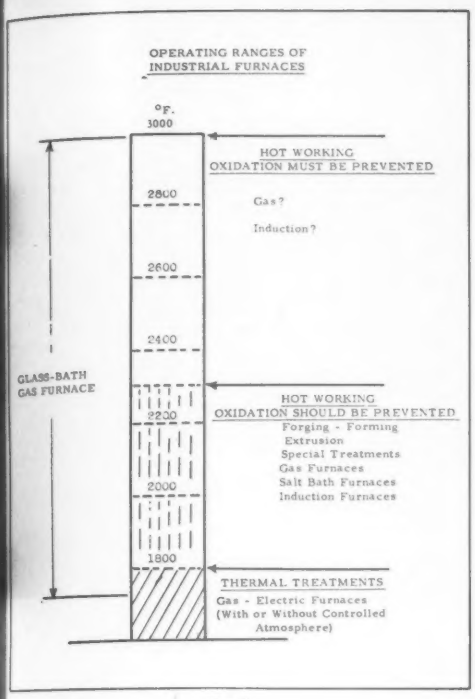

Fig. 2

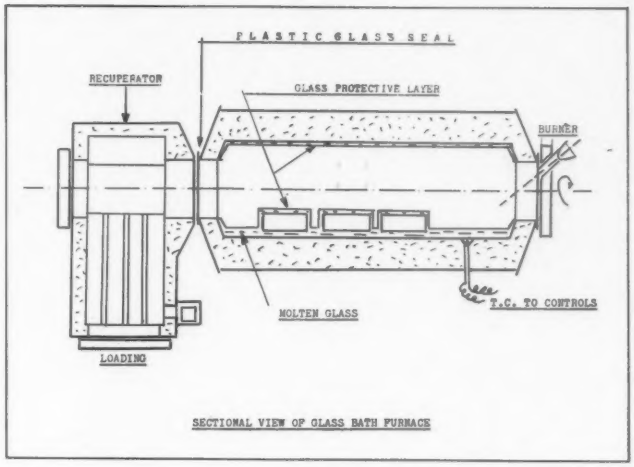

Fig. 3

tomer's plant reveal the total absence of any decarburized layer. Tests made with the furnace at our plant, and with a production furnace in operation, confirmed that the decarburized layer is absent from billets heated in glass bath furnaces.

The basic new idea embodied in the glass bath furnace is the use of molten glass. Broken window glass, essentially a mixture of calcium and sodium silicates, is used at present in steel extrusion. In the Bal-Tate furnace, glass performs the following functions:

- "Pickles" the billets, thus permitting the material to be used as received from the mill.
- Produces a hot scale-free surface.
- Eliminates the direct impingement of the flame on the steel surface, and, in this manner, prevents scaling.
- Effectively adheres to the refractory lining of the furnace, greatly reducing the wear of the surfaces by preventing mechanical contact. (In production furnaces, linings have had a life in excess of two years of operation.)
- Makes a glass layer on the billets, and on the surface of the furnace. Being in continuous motion, it absorbs heat energy by conduction, convection and radiation, and increases the rate at which heat is transferred to the billets.
- Makes a protecting layer on the metal surface; hence, the gas flame can be controlled to deliver the maximum heat energy available.

In the development work which made the glass-bath possible, considerable attention was given to the possibility of chemical reactions between molten glass and steel. Many experiments made in the laboratory and in production show that, under proper conditions, the reactions are predictable and controllable.

In Table 2, the effect of the molten glass on carbon steel is reported. Section A in Table 2 shows that the work carried out in the laboratory consisted of heating, in a crucible, European window glass to which a definite amount of iron oxide, expressed as Fe_2O_3, was added in quantities up to 48 parts per 100 parts of glass.

The crucible was held at 2,250 degrees F. and steel tubes were immersed for one hour. These tests indicate that, up to about 32 parts of iron oxide per 100 parts of glass, the attack on the steel is non-existent, or negligible. (The tubes were exposed to the action of the glass bath on the inside and outside surfaces). With high content iron oxide, there is a definite chemical attack. It is evident, however, that, with so much iron oxide, we are no longer dealing with glass in the accepted sense, but more likely, with what we would consider a slag composition.

In actual operation, the glass cannot accumulate much more than 8 to 10 per cent Fe_2O_3. This is because the amount of glass adhering to the surface of the billets taken out is replenished with fresh glass at the entrance of the furnace proper. In this manner, an equilibrium is soon reached. Production records reveal that the consumption of glass amounts to 30 to 35 pounds per ton of material heated.

As a further check, production furnace tests are reported in Section B, Table 2. The measuring of the diameter of the billets, processed as indicated, proved that there is no chemical attack, even after 55 minutes in a glass bath furnace; that scale produced in the pre-heater is dissolved by the glass; and that the billets emerge from the furnace scale-free.

Further evidence that the glass bath prevents the oxidation of steel billets was shown in the demonstration at the 1958 Metal Show in Cleveland. Pure molybdenum billets were heated daily at the show to 2,350 degrees F. No white smoke (molybdenum oxide) was ever produced.

TYPICAL PRODUCTION EXTRUSION RUNS FROM GLASS BATH FURNACE

BILLETS AS RECEIVED FROM MILL—DIAMETERS 4½"-6"

Sample No.	Analysis C	Ni	Cr	Mo	Mn	Heating Temperature Deg. F.	Time of Heating—Min. Recuperator	Glass Bath	Extrusion Velocity Feet/Seconds
1. JET MOTOR RING HOLDER	.10	8.0	17.0	—	—	2155	0	20	9′ 10″
2. TUBE	.06	10.0	18.0	—	—	2190	45	20	14′ 8″
3. AUTOMATIC BRAKE PART	.12	.7	.6	—	.5	2280	30	17	18′ 6″
4. RIFLE PART	.16	1.30	1.0	.20	.5	2230	45	20	14′ 8″
5. REVOLVER PART	.16	2.85	.80	—	.5	2230	45	20	14′ 8″
6. GEAR	.10	—	—	—	.5	2280	45	20	18′ 6″
7. SPECIAL VALVE	.12	—	12.5	—	.5	2230	30	17	18′ 6″
8. GUN PART	.12	—	12.5	—	.5	2230	45	20	14′ 8″
9. KNIFE BLADE	1.0	—	1.5	—	.4	2200	45	20	14′ 8″

Data from Dr. O. Balestra, Fiav, Milano.

Table 1

EFFECT OF MOLTEN GLASS ON PLAIN CARBON STEEL

A.* MOLTEN GLASS IN CRUCIBLE EXTERNALLY HEATED

L. C. Steel Tube—13mm. O.D.—8mm. I.D.
Immersion One Hour at 2,250 degree F.

European Window Glass	Fe_2O_3	Appearance
100 parts	8	No dimensional changes
100 parts	16	No dimensional changes
100 parts	32	Wall reduced from 2 to 1.5mm.
100 parts	48	Badly corroded

B. PRODUCTION FURNACE TESTS—DEC. 1957

American window glass—iron oxide—approximately 10 per cent
Steel—1,018—3" Diameter Billets
Recuperator temperature 1,800 degrees F.—1,900 degrees F.
Furnace temperature at control 2,300 degrees F.—2,400 degrees F.

1. Time: 2 Minutes in recuperator
55 Minutes in furnace
Diameter of billet
Before—3.049"-3.051"
After —3.047"-3.048"

2. Time: 11 Minutes in recuperator
27 Minutes in furnace
Diameter of billet
Before—3.050"
After —3.038"

* A—Private communication from Dr. O. Balestra, September 1957.

Table 2

I believe that the glass bath furnace will allow us to treat high reactive metals and alloys at temperatures up to about 3,000 degrees F. For these high temperature applications, it may become necessary to use preheated air in special burners, and special compositions of glass which are already available.

At this time, glasses are available for temperatures well below 2,300 degrees F., thus making it possible to use the Bal-Tate Glass Furnace for heating non-ferrous metals and alloys. Development work in this field has been started and will be reported in the future.

In common with all high temperature furnaces in use, the glass bath furnace presents the problem of temperature measurement and control. In the range of 2,400 degrees F. and above, ordinary thermocouples are somewhat limited. In our furnace, a chromel-alumel couple, with its tip in the molten glass, controls the valve mechanism that regulates the burner.

Unquestionably, there is a thermal gradient within the glass layer. However, production controls do not necessitate the knowledge of the exact temperature, if a relative one can be established on the basis of the performance of the material, or by measuring, with radiation or optical pyrometer, the temperature of the billets after the removal of the glass layer.

In this manner, it is possible to establish the relationship between furnace temperature and necessary temperature at the control device. This method has successfully been used for years in the production of the extrusions, and, in Fig. 2, some actual data obtained recently in production runs in the United States is shown.

From this data, the agreement between the controlling couple immersed in the glass layer and the temperature of the billet at the press is remarkably good, while the readings obtained with the optical pyrometer inside the furnace are appreciably higher.

However, we must take into consideration the fact that the furnace temperature readings were obtained by sighting through the opening of the discharge end, through the gas stream and on a glass covered surface. We believe that this problem requires further investigation, but we are confident that reproducible results will be obtained.

Management

(Continued from page 23)

Mr. Miller said that safety is certainly management's business. He then defined management, in order to define safety in management. "A simple definition of management, he said, is the orderly combination of men, material, machines and money, each designed to attain the goals of the enterprise being managed. Safety obviously involves all four of these factors."

Mr. Miller described the progress which has been made in gas industry safety in recent years. As an example of that progress, he pointed out that the gas utility and pipeline industries in the United States achieved in 1957 the safest year on record since A. G. A. began compiling statistics in 1929. Both Mr. Lyon's talk, which stressed the fact that purchasing must "be creative" in our rapidly changing economy, will be reviewed in the May issue of the A. G. A. MONTHLY.

Two speakers were featured at Wednesday's final general session. They were Lee C. Shaw, a member of the firm of Seyfarth, Shaw, Fairweather and Geraldson, Chicago management consultants, who spoke on "The Impact of Collective Bargaining on Management"; and John D. Wilson, vice-president, Chase Manhattan Bank, whose subject was "The Economic Outlook."

Mr. Shaw told how the union movement in the United States has affected both individual companies and the economy as a whole. He described the "evils" of featherbedding in a number of industries, and pointed out the consequences of "creeping inflation" on our economy.

Mr. Shaw also said that foreign competition presents a threat to our entire economy. Our costs are so high, he said, that an American product cannot possibly compete with a similar product which has been imported, and is available, at less cost.

Mr. Wilson forecast that the nation will experience a further advance in economic activity through 1959 and part

(Continued on page 33)

HERBERT C. JONES, *CHAIRMAN* · J. T. INNIS, SAMUEL W. HORSFIELD, *VICE-CHAIRMEN*

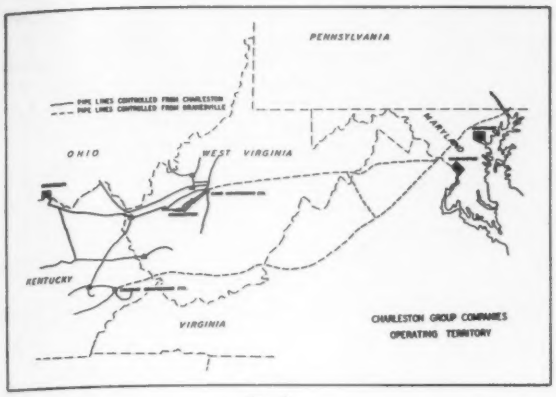

Fig. 1

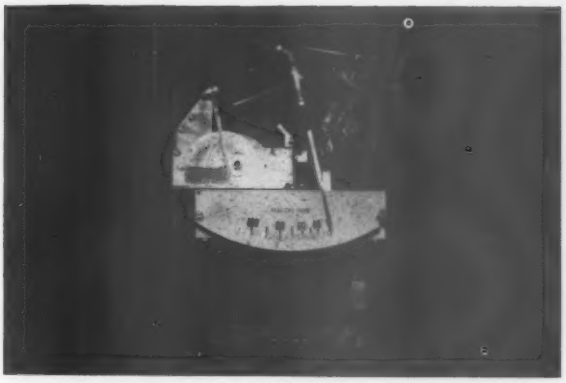

Fig. 2

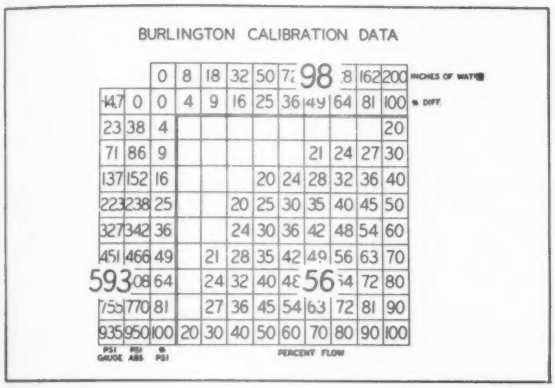

Fig. 3

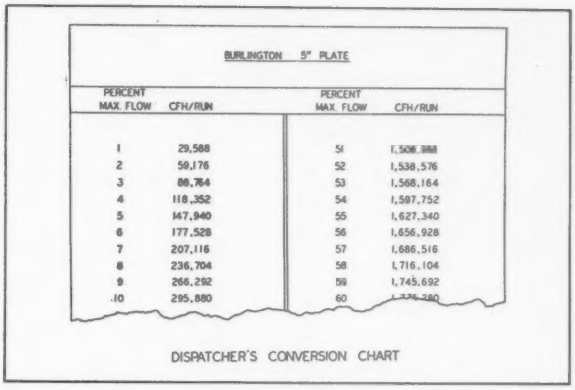

Fig. 4

Make telemetering system flexible

By D. E. YORK

Superintendent of Communications
Charleston, W. Va.
Group Companies
Columbia Gas System

It is difficult to design any system which will economically meet today's problem and yet be flexible enough to cope with tomorrow's situation.

The art of automation (some prefer to call it tele-control or cybernetics) is advancing so rapidly that systems installed today may be obsolete within the next 10 years.

Ten years ago, a telemetering system to the gas industry meant the installation of a transmitter at some remote point and a receiver at the central office. The two were connected by a pair of wires. This type of system only moved the problem from the field to the central office, and actually accomplished little on a large gas system.

Today telemetering means data reduction and the remote operation of valves by pushbuttons. Tomorrow, the same systems will be expanded by the addition of a feedback loop to make our dispatching an automatic operation. This will release man to use his rationalizing powers for more constructive things, leaving the routine reading, alarming, actuating, etc. to electro-mechanical devices.

All of this is being made possible by the advance in the art of communications. Microwave systems are operating today with a capacity of 240 channels over a single radio beam. Such a system could transmit more than 4,000 pressures, or control functions, between two points. With such flexibility available to us in communications, we should not

(Presented at the 18th annual Appalachian Gas Measurement Short Course for 1958 at West Virginia University, Morgantown, W. Va.)

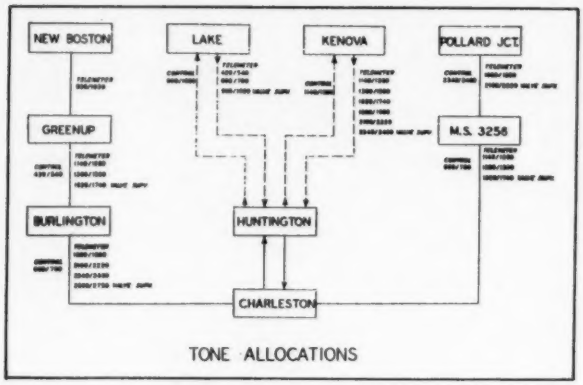

Fig. 5

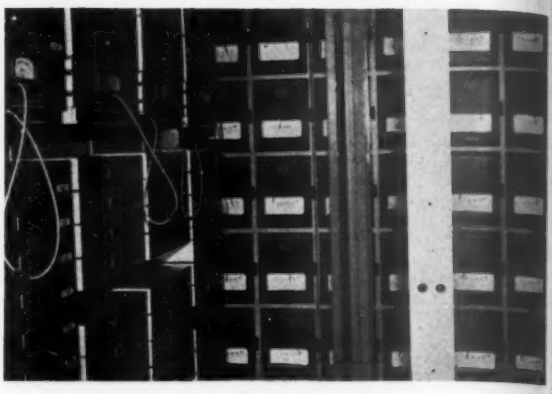

Fig. 6

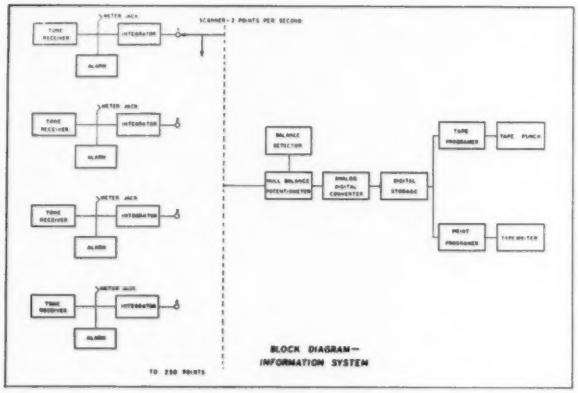

Fig. 7

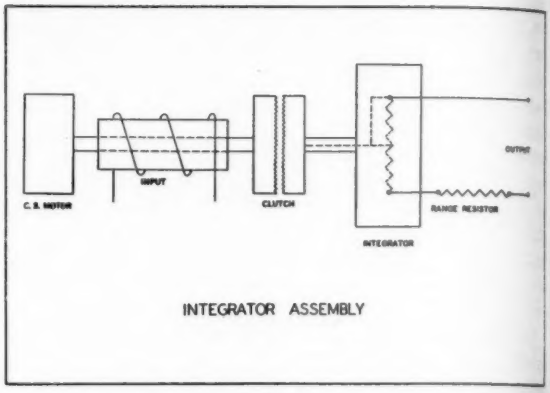

Fig. 8

limit our thinking to a "gauge on the wall" type telemetering system.

Every effort should be made to completely analyze your telemetering problem, and to design a system that may be adapted to many changing conditions. How can such a system be designed? I suggest as a first step, the organization of a committee composed of the people who are responsible for planning the future of your company. Each operating department should be represented on this committee. A typical committee might have representatives from transmission, compressor, production, staff engineering, gas measurement, gas dispatching, distribution, and communications. The committee should be headed by someone with a technical knowledge of available equipment and its application to carry out the plans of the committee.

Telemetering at this stage is almost exclusively used for dispatching. A thorough analysis should be made of the data and information being used by the dispatcher. This can be done by studying the dispatcher's log sheets. This analysis will probably point out considerable redundancy. Every bit of the data should be discussed and its importance weighed. Each bit of data transmitted from a remote station will require an investment of $1,000 or more. Therefore, it is good economics to scrutinize each bit carefully. A well designed information system gives the dispatcher only the information he needs for making a decision, and does not load him with useless data.

All data should be reduced to usable information before it is presented to the dispatcher.

A log sheet should be designed which will present information to the dispatcher in the best possible manner. It should be so arranged that future stations may be added without upsetting the balance of the entire system. Consideration should be given to future load requirements, the addition of runways in existing measuring stations, and, for the construction of completely new stations. Space should be provided for these so the information will be presented to the dispatcher in proper sequence.

The required data should be further analyzed to determine pressure ranges and volumes. It is recommended that charts or dispatching records be reviewed for a two-year period. This will show the pressure ranges necessary for the telemetering instruments.

We have now decided on the number of stations to be telemetered and/or controlled, the range of the instruments, and the order in which this information is to be presented to the dispatcher. All stations from which the dispatcher now receives data should be telemetered, even though they be manned compressor stations where no economies can be effected by the installation of telemetering equipment. This is necessary because:

1. All dispatching information should appear on one set of log sheets and in proper sequence.
2. If this is to be truly an information system, it must receive all data necessary to make its computations.
3. Keeping flexibility in mind, an information system should be designed capable of conversion to automatic dispatching.

Consideration should be given to feeding this data into a computer which would make decisions based on predetermined factors. Change in deliveries

would then be made automatically without action from the dispatcher.

A program should be developed for the purchase and installation of equipment necessary to do the job. It is impractical to install a large system in one year. You must remember that, in most cases, the use of this equipment represents a radical change in the art of dispatching. Therefore, the dispatcher needs time to gain experience and develop confidence in the operation of this new tool.

Initial installations should be made in storage fields, or similar facilities which are a part of your own internal gas system, rather than on stations making large wholesale deliveries to other customers outside your company. By the time these installations are complete, everyone will have the experience necessary to tackle the larger stations. After an installation has been completed, it should be put through a 30 to 45 day shake-down period before it is turned over to the dispatcher for remote operation.

During this period, all operations should be performed remotely by the dispatcher but should be closely observed by field personnel for proper operation and accuracy. If possible, pick stations for initial installation which are manned. This will serve a dual purpose: first, during the shake-down period, the dispatcher will want to verify telemetered readings; and second, relieving man power by the installation of telemetering equipment will effect immediate economies.

Training the dispatchers in the use of this new tool and acquainting the field technicians with the problems of gas dispatching cannot be over emphasized. The dispatchers can be trained by insisting that they perform all operations from the console during the shake-down period. If the equipment fails during this period, the technician should explain, in non-technical language, exactly what happened and what steps will be taken to avoid re-occurrences.

By this method the dispatcher will gain both experience and confidence. Technicians responsible for maintaining electronic equipment associated with the system should be put through an abbreviated training program with gas dispatching, gas measurement, and transmission. A minimum of one week in each of these departments will impress upon the technician that the purpose of the electronic equipment is to insure control of the delivery of gas from the well head to the burner tip.

During this training period, the technician should acquaint himself with the operation of such devices as regulator controllers and plug valve actuators. He should be well acquainted with gas operations performed by each telemetered station, and he should be capable of making emergency manual adjustments as directed by the dispatcher. In case of station failure, the first man called will probably be the electronic technician. He should be able to perform any manual operations necessary to insure uninterrupted gas flow.

Calibration should be a joint function of gas measurement and communications. The gas measurement department should calibrate the primary sensory element. Communications should adjust linkage necessary to convert the measured value to an electrical impulse. In all cases, the dispatcher must be notified before any adjustment is made on a station.

The installation of telemetering equip-

Fig. 9

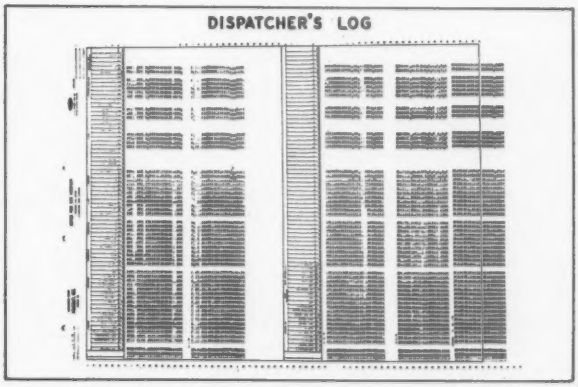

Fig. 10

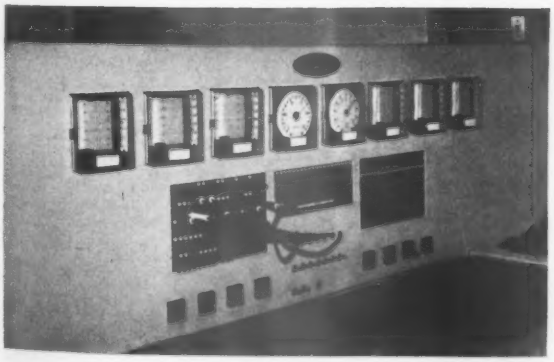

Fig. 11

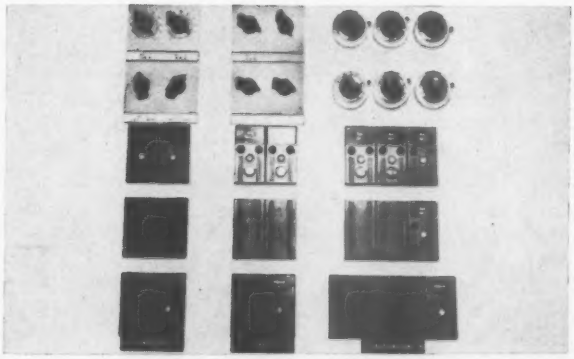

Fig. 12

ment pays off in streamlined operations, improved efficiency, and man-hour savings. Man-hour savings is the one we have to handle carefully. It is no trick to replace the function of the field man, with a few telemetering transmitters and valve actuators, as far as reading pressures and operating valves is concerned.

But the job is a little more complicated if the man being replaced also calculates rates. To merely telemeter data to the dispatcher and have him calculate the rates would only move the man hours from the field to the central office. Data reduction equipment must be included in order to realize the maximum economies from a telemetering installation.

Here is what we want to accomplish with our tele-control system: collect data from several locations; reduce this data to dispatching information; record this information; be advised of any change or trend throughout the system; have positive control of major valves and regulators in our system; and, design a system flexible enough to adapt to tomorrow's operation.

The Charleston Group Companies of the Columbia Gas System area of operation is shown in Fig. 1. For dispatching, the system was divided into two parts. All gas west of Cobb and Boldman Compressor Stations is dispatched from Charleston. All gas east of these points is dispatched from Dranesville, Va. Both telemetering systems use identical equipment.

Pressures, temperatures, flows, and supervisory signals are transmitted from remote locations over our privately owned telephone system, over leased wire or over microwave. The same circuits are used in the reverse direction for controlling valves and regulators. The type of communication medium makes little difference, so long as it is dependable and capable of transmitting the signals required. If the communication medium is properly designed, distance between the central office and the remote station is of no concern.

Pressures and temperatures are measured by a standard telemeter transmitter which converts these readings to an electrical impulse. The duration of this impulse is proportional to the quantity being measured. Flow is measured in much the same manner.

Fig. 2 shows a pressure compensated flow meter developed by the Bristol Co. The differential pressure is measured by a Barton cell attached to the back of the meter case. Line pressure is measured by a pressure spring inside the case. By the action of these two elements, the angular position of the cam follower will, at all times, be indicative of the product of the differential and line pressure. The cam in this instrument has a square root cut which automatically extracts the square root of this product. Our electrical output signal is, therefore, pressure compensated flow.

These flow meters are accurately calibrated for a maximum static and differential pressure. This represents 100 per cent of flow. All other readings are proportional.

Fig. 3 shows a calibration chart for one of these instruments. The vertical column on the left indicates the static pressure; the horizontal column on the top indicates the differential pressure. The body of the table shows the percentage of flow for any combination of the two. For example, with a gauge pressure of 593 pounds and a differential pressure of 98 inches of water, our output signal would be 56 per cent of maximum flow for that station. If the dispatcher connects a receiver to this particular meter under this condition, it would read 56 per cent. By referring to a chart as shown in Fig. 4, he knows that 56 per cent represents 1,656,928 CFH delivery for a five-inch orifice plate.

The accuracy of this flow meter is 1 per cent of full scale for a range of 20 per cent to 100 per cent of differential pressure and 40 per cent to 100 per cent of line pressure.

The signal from each quantity measured is transmitted by a separate electronic tone to the central office. Eighteen to 24 of these tones can be transmitted simultaneously over a single telephone grade channel. Fig. 5 shows the tone allocation for a portion of our system. Two tones are assigned to each station for control, and one tone is used for valve supervision. This type of telemetering is known as a simultaneous system, as opposed to a sequential system. Both systems have their merits. We chose to use this type, because we wanted to keep the remote equipment as simple as possible, and, at the same time, have high speed read-out.

The total system proposed to be dispatched from Charleston will have 250 bits of data from approximately 50 locations.

Signals from the remote stations are received in Charleston by the tone receivers shown in Fig. 6. Provision is made for testing each receiver separately without disturbing readings being received. In fact, test points have been provided on all equipment so it may be checked and adjusted by relatively inexperienced personnel without danger of disrupting service to or from a remote station.

Each remote station is designed to be identical insofar as electrical connections and test procedure is concerned. Any technician, once trained to service telemetering equipment, can work in any part of the system if the need arises. A complete set of wiring diagrams is kept in a portfolio at each station. An identical set is kept by the engineer at the central office. This arrangement makes it possible for the engineer to assist the field technician on the tougher maintenance problems.

Fig. 7 is a block diagram of the information system installed in the Charleston Headquarters building. This system is of a building block construction so that additional points may be added as the need arises.

The output of the tone receivers is fed to three different points:

1. It is fed to a meter jack in the console. By plugging a standard telemeter receiver in one of these jacks, the dispatcher can read the instantaneous value of any variable, and, if a recording type receiver is used, he can make a graphic recording as desired. These jacks are also used for observing changes in pressure or flow while a regulator setting is being changed.

2. The tone receiver output is also fed to an alarm receiver. The purpose of this receiver is to advise the dispatcher of any change from the desired operating limits. This is a standard telemetering receiver equipped with a retransmitting slide wire. The output of the slide wire is compared to a slide wire (set pot) located on the operating console. If a difference exists in the voltage output of these two slide wires, an alarm is sounded and a visual indication given showing which variable is out of limits.

3. The tone receiver is also connected to the integrator. This is the device that remembers 720 readings each hour, averages or totalizes them, and compensates for time.

Fig. 8 is a simplified sketch of an in-

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Management

(Continued from page 28)

of 1960. He said, however, that the pace of the upsurge would probably be slower than it was during the early months of recovery in 1958. But, he said, by the fourth quarter of 1959, the gross national product will be running at a rate in excess of $480 billion.

"There is evidence that the nation is enjoying another upsurge in activity—that business is making more effective use of the new plant and equipment built up over the years," he said. "This should lay the basis for further growth in the economy in 1960."

Mr. Wilson said that he thought that the potential for inflation in this country has been over-dramatized.

"Perhaps the thorniest aspect of the matter is the tendency for rising wages to outrun increases in productivity," he said. "I have no answer for this, except to say that I believe the implications of such a tendency are beginning to be more widely understood by labor."

At the final luncheon on Wednesday, Thomas F. Patton, president, Republic Steel Corp., said that he was "hopeful," but not "optimistic," about a strike-free summer in the steel industry.

He also said that the United Steelworkers' demands for a wage increase, which are based on claims of higher productivity per man-hour and on steel company profits, are not justified.

Mr. Patton charged that United States businessmen have neglected the part they should be playing in politics, and, as a result, "are to blame for many of their laments over government, political and economic policies."

He said that these businessmen should encourage men from their own ranks to run for political office and that they should "support them to the limit."

"Organized labor is not ashamed to ring doorbells, distribute political literature, or to sit down with fellow citizens in their precincts and argue their case," Mr. Patton said.

"Businessmen, in contrast, seem to view political activity as distasteful and lacking in gentility. But it will be little solace, if we end up with a completely labor-dominated government, to say to ourselves that, at least, we are gentlemen, unmarked by political battle," he concluded.

The Purchasing and Stores Committee held conferences on Monday and Tuesday afternoons. Details of these sessions will be reported in the May issue of the A. G. A. MONTHLY.

Other Monday afternoon sessions were the Financial Management meeting, and the open meetings of the Accident Prevention Committee, the Committee on Comparison of Competitive Services, the Insurance Committee, and the Personnel Committee.

Robert G. Olmsted, vice-chairman of the board, Long Island Lighting Co., presided at the Financial Management meeting. He discussed "Convertible Securities: Advantages and Disadvantages" with two other executives: E. J. Howe, president, Rochester Gas and Electric Corp., and A. W. Whittlesey, Pennsylvania Co. for Banking and Trusts.

An additional Tuesday afternoon meeting was the panel discussion on "What Is The Gas Industry Doing About Management Development?" Mr. Sargent, who spoke on this subject at a Tuesday luncheon, was the discussion leader. Panelists were Stuart J. Barrett, vice-president, The Peoples Gas Light and Coke Co.; J. O. Grantham, manager, employee relations department, Northern Natural Gas Co.; John Haman, industrial relations consultant, Ebasco Services, Inc.; and Frank C. Mackay, manager, personnel department, Long Island Lighting Co.

Open sessions held Tuesday included those of the Accident Prevention Committee, the Committee on Comparison of Competitive Services, and the Insurance Committee.

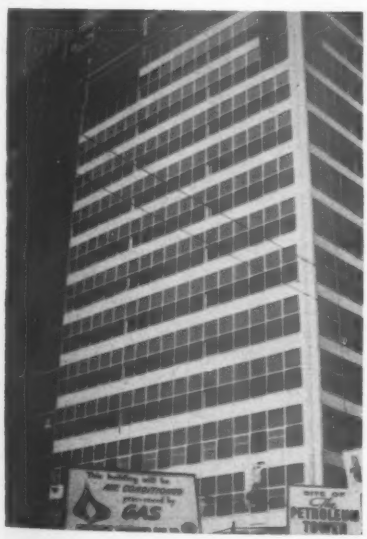
The Accident Prevention Committee's dinner was held on Tuesday evening. The Claims Agents Subcommittee held meetings on both Wednesday and Thursday.

Skyscraper installs gas

A 612-TON CARRIER gas absorption air conditioning unit was recently hoisted to the top of a new aluminum skyscraper in Shreveport, La.

Cables carried two 26,500-pound chillers and boilers to the 16th floor of the new Petroleum Tower, which is being constructed by Henry C. Beck Co. Two large gas-fired boilers will provide the steam for heating in winter, and for operating the absorption refrigeration unit in summer. Gas will be supplied by Arkansas Louisiana Gas Co.

The location of the air conditioning equipment and boilers on the top floor leaves the basement space available for use as a cafeteria. In addition, the location has eliminated the need for running many pipes and shafts through the entire height of the building.



A 26,500-pound chiller is hoisted to the top of a new Shreveport, La., office building, which will be both heated and cooled by gas

McNay Gas purchased

THE UNITED GAS IMPROVEMENT CO., Philadelphia, has purchased the physical assets and inventory of McNay Gas Corp., Ephrata, Pa. McNay Gas has used the trade name of Ward Bottle Gas. United Gas Improvement will operate the McNay firm through Ugite Gas, Inc., a subsidiary created specifically to handle the parent firm's bottle gas business.

Samuel Green retires

Samuel Green

SAMUEL GREEN, senior vice-president, The Brooklyn Union Gas Co., retired March 2. He had been with the company for 47 years.

Mr. Green joined Brooklyn Union in 1912. He rose through a number of positions in the manufacturing department and, in 1951, became chief engineer. He was elected vice-president and chief engineer in 1953, and senior vice-president in 1957.

Mr. Green has been active in A. G. A. affairs. For two years, he was chairman of the General Research Planning Committee. He is currently a member of that committee, vice-chairman of the PAR Committee, and chairman of PAR's Subcommittee on Research.

It takes quality salesmanship to sell quality ranges

A gas industry leader, who helped introduce the "CP" program in Brooklyn 20 years ago, returned recently to urge top standards in selling during the current Gold Star program for quality gas ranges.

E. Carl Sorby, vice-president, George D. Roper Corp., urged The Brooklyn Union Gas Co. salesmen to become so intimately acquainted with the 28 advances in design and automation of the Gold Star Award ranges that "you can make the prospect vibrate with the confidence you have . . . there is so much to sell, so much to dramatize."

"A product can be poor, fair, good or excellent, it cannot be all things to all people," he said. "You don't have to sparkle, or know too much about selling, to sell fair or poor goods. You can be mediocre in action, dress and behavior.

"A good product calls for good selling, for sincerity, enthusiasm, leadership, learning, inspiration, and nerve, too.

"People can tell in an instant if you are sincere.

"Nobody wants to be sold—that went out 15 years ago. It's 'I bought' and not 'I was sold'."

Mr. Sorby defined sales leadership as "helping people by telling them what they want to know." He said:

"Tell them the price—that's what they're asking, that's what they want to know. But there's more to price than what's on a price tag. Don't embarrass a customer by making her ask 'how much down?' "

In summarizing the sales appeal of the new gas ranges, Mr. Sorby emphasized the appeal in family living, and the advantage in offering a range even young people can use with assurance of satisfactory results.

The Gold Star program, he said, is "the rebirth of a dream, the finest selling opportunity." It represents an extension of "CP" objectives.

"CP" is a trademark of the Gas Appliance Manufacturers Association for ranges meeting upgraded standards. The Gold Star program is under the leadership of the A. G. A., backed by heavy utility support and manufacturer cooperation.

Exactly 20 years after coming to The Brooklyn Union Gas Co. to help launch the "CP" program for quality gas ranges, E. Carl Sorby returned to do the same for Gold Star

Telemetering

(Continued from page 32)

tegrator assembly. The integrator assembly consists of a constant speed motor, clutch assembly, and precision potentiometer. The motor operates at all times. The clutch contacts the potentiometer shaft when it receives a contact closure from the tone receiver. For example, a 50 per cent of scale reading on a telemetering transmitter would transmit a contact closure for two and one-half seconds, and an opened contact for two and one-half seconds for each five-second period.

For two and one-half seconds, the potentiometer would rotate. The clutch receives 720 orders each hour. At the end of the hour the total pot rotation is proportional to the contact closure received. If our transmitting pressure had remained 50 per cent during the entire hour, the pot would have rotated for a total of 1,800 seconds. The output of the pot is read as a DC voltage, which is proportional to the total rotation. Time compensation is provided for "demand logs" which permits an average read-out, even though only a few sample readings have been received.

The resistor marked range resistor compensates for different size orifice plates. This is a plug in type resistor which can be changed readily when orifice plates are changed in the field.

Referring again to Fig. 7, each integrator is connected through a stepping scanner to a potentiometer with its associated balance detector. The scanner selects each measured point hourly or on demand.

The DC signal output of the integrator is converted to an AC signal and amplified. The output of the amplifier drives a balance motor which in turn positions a slide wire in the balance circuit. When balance is achieved, a digitizer translates the shaft position of the potentiometer into digital form. The digitizer operates a hundreds, tens, and units relay, in series, in digital storage. These relays are so arranged that one will not be energized until all three are energized.

The print programer calls on digital storage for this information. Each digital relay operates one key of an electric typewriter. After all three digits have been printed, the relays in digital storage

are released and the next point selected and the process repeated. After the entire log has been completed, all integrators are reset to zero.

Any desired information can be programmed from digital storage to a tape punch. The tape may be used to operate a teletype circuit for transmitting certain programmed information to other locations. The Charleston Group System has two dispatching centers. Since our pipeline network is operated as an integrated system, it is necessary to program certain information between these two locations. This is accomplished by use of the tape programer.

Fig. 9 shows the typewriter and chart programer. The chart programer, mounted on the right hand side of the table, positions the chart to the start of the first log segment. After a line is printed in the first segment, it rolls the chart to a second segment, and a second line of entries is made. Once each hour or on demand, this machine prints a complete log.

Fig. 10 shows a typical log. The first log entry is a "D" or "T" to indicate whether this is a demand log or a regular hourly log. Next is printed the time of day and then each variable is printed in its proper column. Volumes are recorded in Mcf per hour, temperatures in degrees and pressure in psig. Seventy-two three-digit entries may be made on each line. One hundred and 44 entries can be recorded on a two-segment log. Zero entries for meter tubes having closed valves are printed in red. This makes it easy for the dispatcher to note the number of runways shut down at each station.

If a runway is shut down between regular logging cycles, the logger starts automatically, and records the volume of gas which has passed through that runway since the last log.

Fig. 11 shows the operating console. From this console, the dispatcher can select and read the instantaneous value of any variable in the system. He can select and operate any valve or change the set point on any regulator. He can adjust the high and low operating limit for pressure and flow or he can demand a read-out of the entire system.

The center section of the console contains seven telemetering receivers connected to telephone cord circuits. The eighth meter is used in conjunction with the alarm system to facilitate adjustment. Each measured variable is terminated in a telephone jack. By plugging a telemetering receiver in any one of these jacks, it is possible to observe a variable or make a recording if desired.

Immediately over the jack is a lamp which gives the dispatcher visual indication of any off-limit condition. These lamps are color-coded, the same as the cord tips of the receiver. This makes it easy to select a receiver of proper range.

The center section also contains the master operating pushbuttons for opening and closing valves or changing set points on regulator control. Various test switches, for testing the operation of the information system, are also included in this section. The center section is designed to accommodate the ultimate capacity of the system without modification.

Sets operating limits

Fig. 12 shows a typical group of set pots and control escutcheons. These are used for setting the high and low operating limits, and, for selecting and supervising valve and regulator operation. They are located in the wing section of the console. As the system is expanded, these sections will be extended.

The set pots are 10-turn potentiometers equipped with vernier heads. They are calibrated directly in pounds or percentage of flow. When the dispatcher wants an alarm on a pressure point, should it raise above 805 pounds or drop below 795 pounds, he sets the high alarm control for that point on 805 and the low alarm control on 795. When the pressure gets beyond these limits, an audible alarm will be sounded, and a lamp in the jack field will indicate which pressure is out of limit. The audible alarm sounds for one second only, but the lamp stays on until the alarm condition is corrected. When an alarm condition is received, it is the normal operating procedure to plug one of the receivers into that point and observe whether the pressure is high or low.

Control of valves and regulators is accomplished by the use of pulse counting supervisory control equipment. This system consists of a control station and a remote station connected by a duplex tone channel.

As shown in Fig. 12, an individual escutcheon is provided for each valve or regulator. Mounted on this escutcheon is a selection pushbutton, a white selection lamp, a red lamp, and a green lamp.

To operate a valve, the dispatcher first pushes a selection button. This causes the control station to transmit a predetermined selection code. The code is received by the remote station which selects the valve to be operated. When the selection relay is operated at the remote station, the selection code is returned to the control station. If the code returned is the same as the one originally transmitted, the white lamp is lighted. The dispatcher then knows definitely that he has selected the desired valve.

He may now operate this valve by applying a pilot tone and operating the master control pushbutton, or he may cancel his selection by operating the reset pushbutton. The pilot tone is an extra safety feature which completes the circuit of the interposing relays.

When the valve operates, it also operates an auxiliary switch which transmits the valve's new position back to the control station. Two auxiliary switches are mounted on each valve to indicate a fully opened or closed position. The code transmitted to the control station lights either a red lamp or green lamp, depending on the position of the valve. An indication is also given when valves are changed manually. The position indication for all valves may be checked by operating the "check" pushbutton which causes each valve or regulator to be challenged and its position verified.

Regulators are operated in the same manner as the valves. The regulator controllers are equipped with reversible motors which change the set point at the rate of 1 per cent per second. After the set point has been changed as much as 10 per cent, the control equipment automatically resets, and the dispatcher must select the regulator again before further change is possible. This reduces the chance of over-control of regulators.

The system I have described fulfills our requirement for a telemetering system. It collects data, reduces the data to dispatching information, records the information, advises us of any change or trend throughout the system, gives us positive control over valves and regulators, and is designed to be compatible with tomorrow's operation. It has become a valuable tool for the dispatcher in handling the ever increasing demand for natural gas.

Industry news

Arkla ships record total of air conditioners

SHIPMENTS OF ARKLA-SERVEL all-year gas air conditioning units in February 1959 totaled 931, a figure higher than the total for any previous single month in the company's history.

The new record was reported by W. R. Stephens, president, Arkla Air Conditioning Corp.

The 931 units shipped from the company's Evansville factory compared to the previous high of 834 units, and to the 492 units shipped in February 1958.

The totals include the three-and-one-half ton and five-ton Arkla-Servel Sun Valleys for year-round heating and cooling, and the 25-ton Arkla-Servel chillers.

Shipments for the first two months of 1959 totaled 1,595 units, a substantial increase over the total of 949 units shipped in the first two months of 1958.

Quebec Natural Gas will install pipeline across St. Lawrence River

QUEBEC NATURAL GAS CORP. has begun construction of a natural gas pipeline which will cross the St. Lawrence River at Montreal, in order to supply the fast growing South Shore area. According to Leonard Milano, executive vice-president and director of Quebec Natural Gas, the company foresees the consumption by 1965 of up to four billion cubic feet of natural gas per year.

The new pipeline will be the first gas line crossing of the St. Lawrence in Canadian history. First delivery of gas is scheduled for late in August to the new mill of Steel Co. of Canada, Ltd., (Stelco) which is presently also under construction. The new mill is part of a projected $100 million steel mill complex in the South Shore's Contrecoeur-Varennes-LaPrairie district.

Other parts of the industrial complex will be a steel mill development by Quebec South Shore Steel Corp., a new company which includes interests represented by Koppers Co., Inc., of Pittsburgh, and Strategic Materials Corp.; and a hot and cold rolling mill development by Dominion Steel and Coal Corp., and Sogemines, Ltd., the Canadian affiliate of Belgium's Société Générale de Belgique.

The initial gas line outlay of the new Quebec Natural Gas pipeline is estimated at $5 million. Eventual long range expansion of the pipeline to meet the growth needs of the area is expected to require several times that amount. Thousands of acres of South Shore industrial waterfront and inshore land will ultimately be the sites of commercial and housing projects.

"Engineering problems for this river crossing are unusual," Mr. Milano explained. "Two plans have been under study in cooperation with government and municipal authorities. One involves a submarine water crossing of several thousand feet with river depths up to 50 feet and a current of seven miles an hour.

"The other plan, which now appears most feasible, is a crossing via the Jacques Cartier bridge, a two-mile-long project which has recently undergone span elevation to accommodate new St. Lawrence Seaway shipping. Certain line suspension facilities installed when the bridge was built will speed up the work."

The new pipeline will connect with Quebec Natural Gas' main natural gas installation on Montreal Island. This installation is supplied from Trans-Canada Pipe Lines, Ltd., through that company's 2,300-mile transmission line from Alberta.

"With a firm gas supply under contract," said Mr. Milano, "provision has been made for annual increases so that we will be able to meet future needs for all phases of future growth in the fast developing Province of Quebec."

Canadian natural gas was first introduced into Montreal last summer. Quebec Natural Gas began operations in April 1957, when it acquired the government owned manufactured gas distribution system and other facilities. Prior to the advent of natural gas in the area, cost and production handicaps on the manufactured product forced restrictions on both industrial and domestic heating uses. All of these restrictions were removed when the line from western Canada was completed.

Quebec Natural Gas, which currently serves 250,000 customers, has some 6,000 stockholders. The company's common stock is listed on both the Montreal and Toronto exchanges.

Norco offers new, small gas and electrigas refrigerators

NORCO, INC., has begun production of a new line of gas and electrigas convertible refrigerators at its recently established eastern manufacturing division in Stroudsburg, Pa. The gas models currently being produced are for use with natural, LP and manufactured gas. Called Norcold, the new line of refrigerators has already received A. G. A. approval.

The new gas refrigerators are available in four and six cubic feet. They have no moving parts. Their features include automatic ice cube release trays, a special rack for 12 eggs, automatic controls, the Norcozip front lighter, dual hinge design which permits reversal of the door opening from left to right, deep shelves on the door, adjustable and slide-out shelves, and a full-width crisper. The six-cubic-foot model also has cross-top freezing and an automatic interior light.

The refrigerators, each of which is guaranteed for 10 years, are available in both white and three pastel colors. The four-cubic-foot model sells for about $239.95, the six-cubic-foot model for about $299.95.

The new electrigas convertible butane/electric refrigerator, which contains all of the features of the gas models, is designed to convert from gas to electricity in 10 seconds. It sells for about $259.95 in the four-cubic-foot size, and about $319.95 in the six-cubic-foot size.

Norco has also announced the introduction on the market of the new Superieur line of Vaillant instantaneous water heaters. Improvements incorporated in these new units include a new coil insert for almost noiseless operation, more compact controls, and an increase in capacity.

Norco also plans to produce an improved model of the Astral two-cubic-foot gas refrigerator. The new unit will have a high capacity for tropical operation, and a simplified burner lighting method.

In another series of developments, Norco has announced both the creation of several divisions and a number of personnel changes.

Because of its growth in sales volume over the past four years, the company has established a trailer division to supply trailer and mobile home manufacturers, supply houses, and trailer dealers; a gas utility division; an LP gas division; and a division for appliance distributors and dealers.

Andrew Brough has been named manager of the Middlewest trailer division. Others appointed to the new area were Richard G. Birlich, J. E. Grady, Howard F. Meyers, Edward E. Samuelson and Alan B. Wilson.

Ralph Leon has become technical representative for the Eastern gas utility division.

Floyd Von Der Scher has been named chief of national technical operations for the western trailer division. Tony Trifiletti has been selected to take charge of Western sales for the refrigerator field.

Laverne Youngblood has been appointed manager of a new unit re-charge station in Los Angeles.

Jack Kreutzer has been named to head a new cabinet repair department.

In still another development, Norco has established a new integrated advertising and sales promotion program. Gerald Novotr has been named advertising director.

LP-Gas industry reports success in reaching new markets in 1958

THE LIQUEFIED PETROLEUM GAS industry's success in reaching new markets for home heating is an outstanding feature of the 1958 equipment sales record, according to a Gas Appliance Manufacturers Association summary.

In a comparison of LP gas equipment shipments in 1958 with those in 1957, in terms of both numbers of units and percentages of the gas total, statistics show the progress which the fuel made despite the economic conditions during much of the year.

Edward R. Martin, GAMA's director of marketing and statistics, said that there was generally little change in LP's share of the gas appliance and equipment industry total, despite the continued expansion of the natural gas network and the bigger replacement market for equipment using utility gas.

The 81,100 LP gas-fired forced warm air furnaces shipped by manufacturers was a new all-time high. The 1957 total was 71,700. The LP percentage of the industry total, however, fell from 10.2 per cent to 9.5 per cent.

The rise in shipments of vented recessed wall heaters was from 51,300 in 1957 to 60,700 in 1958, although the LP portion of the industry total dipped from 16 per cent in 1957 to 15.6 per cent in 1958.

Figures have not yet been completed for gas floor furnaces, but preliminary data shows approximately 24,000 LP models shipped during the year, or 25 per cent of the total for both LP and utility gas. The figures in 1957 were 26,800 and 25.8 per cent.

Shipments of LP water heaters dipped from 11.8 per cent of the industry total in 1957 to 10.8 per cent in 1958, but the number of LP models shipped declined only from 299,000 to 288,800.

In the area of conversion burners, the LP manufacturers shipped 4,700, or 3.2 per cent of the industry total, a decline from 1957's 5,900 and 3.6 per cent.

It has not been possible to segregate LP figures in GAMA's direct heating statistics, said Mr. Martin, but, on the basis of available data from prior years, the ratio would be between 24 and 27 per cent of the total, or between 338,000 and 380,000 units, and probably not greatly changed from 1957.

GAMA continues to use 20 per cent of industry shipment totals as an approximation of LP's share of gas range distribution. At this ratio, for both years, the presumed 1958 figure of 379,300 would be down slightly from 394,000 in 1957.

In the field of household model incinerators, the latest figures—4,400 LP units shipped, or 8.3 per cent of the gas total—show decreases from 4,800 and 8.6 per cent in 1957.

LP also contributed to the boiler, refrigerator, clothes dryer, and air conditioner totals, but specific figures are not yet available.

Central Illinois Light employees win top safety award for 1958

CENTRAL ILLINOIS LIGHT CO. employees have received the highest award of the National Safety Council for the lowest accident frequency rate of any utility in the company's class in the United States.

The award, which was presented recently to Ralph Maher, chairman of the company's 1958 central safety committee, is the 13th first place award for outstanding safety won by Central Illinois Light employees. Since 1933, when safety records were first compiled, the company's employees have won first place 13 times, second place seven times, third place four times, and fourth and fifth places once each.

The company's winning accident record for 1958 was 1.39 accidents per million man-hours worked. Second place was won by New Orleans Public Service, Inc., with 1.70 accidents. Third place was won by Wisconsin Public Service Corp., with 2.37 accidents.

The 1958 average for combination gas and electric companies of comparable size to Central Illinois Light was 4.77. The average for combination gas and electric companies of all sizes was 5.69, more than four times higher than Central Illinois Light's record.

During 1958, four lost-time accidents occurred: two in Central Illinois Light's Peoria division, and two in its Springfield division.

Gas infra-red heating method doubles capacity of concrete-molding firm

BY USING GAS infra-red heat to cure molded concrete products, Fifer Industries, Inc., Louisville, Ky., recently doubled its production capacity. Forms for steps, splash blocks, sills, chimney caps, and other speciality items may now be used at least twice a day instead of once.

After the forms are poured, one or more portable, propane-fired, infra-red generators is moved into place for curing, and is adjusted to radiate over the entire top surface of the forms. The forms are removed after one and one-half hours of infra-red curing. The concrete is wet down several times a day after removal from the forms, in order to achieve uniform curing.

Before adopting the heat curing method, Fifer left concrete in the forms overnight. Since most of the company's products are designed for a particular construction job, a new set of metal forms, costing an average of $90 each, is required for each production lot. Fifer's production runs range from 30 to 1,000 pieces. Heat curing has both cut in half the number of forms required and reduced the delivery time for each lot.

The portable heaters used by Fifer are made by Perfection Industries, division of Hupp Corp. They were sold to Fifer by Olson Infra-Red Gas Heating Co., Perfection's Louisville distributor. The rayheads are of the same type used for heating high-bay factories and other industrial buildings with propane or line gas.

Fifer prefers portable propane-fired units because of their adaptability, although line gas is available. A 100-pound cylinder of propane, which costs Fifer about $8, operates one of the heaters for 70 hours. Fifer's costs average about 17 cents per lot per heater. Each heater covers 30-40 square feet and produces 12,000 Btu per hour.

Use of a gas infra-red heating method for curing molded concrete products has doubled the production capacity of Fifer Industries, Inc., Louisville, Ky. Engineer is shown using the new portable, propane-fired heaters to cure the entire top surface of the various concrete forms

A. G. A. announces new publications issued during March

PROMOTION

- **Line electros of Gold Star Award.** 1 inch, $4; 1½ inches, $5; 2 inches, $6.
- **Half-tone electros of Gold Star Award.** 1 inch, $5; 1½ inches, $6; 2 inches, $7.
- **Four-color electros of Gold Star Award.** 1 inch, $18; 1½ inch, $22; 2 inches, $26.

ACCIDENT PREVENTION

- **Suggested Safe Practices for Stand-by Plant Operations.** 10 cents.

RESEARCH

- **Regenerative and Recuperative Devices for Industrial Gas-Burning Equipment,** by J. H. Potter and K. H. Weil. $1.50.
- **Branch Connections Report 2: Survey of Research,** by T. J. Atterbury, G. M. McClure, C. H. Roos and H. J. Grover (of Battelle Memorial Institute). $2.

PUBLIC INFORMATION

- **Gas and the Atom.** 2-999 copies, 8 cents each; 1,000-9,999 copies, 7 cents each; 10,000 or more copies, 6 cents each.

STATISTICS

- **Quarterly Report of Gas Industry Operations, Fourth Quarter 1958.** Free.
- **Monthly Bulletin of Utility Gas Sales, January 1959.** Free.

PREMIUMS

- **Gold Star Cook Book.** 14 cents each, up to 25,000 copies; 12 cents each, 25,000 or more copies.

COMMERCIAL PROMOTION

- **Compilation of Uniform Standards and Regulations Relating to Incineration and Incinerator Equipment,** by the Incineration Committee. $1.25.

INDUSTRIAL AND COMMERCIAL

- **Steel Mill Flow Sheet,** Information Letter No. 96, by the Metals Committee. Free.
- **How To Sell Gas to GSA,** Information Letter No. 97, by the Air Conditioning and Heating Committee. Free.

NEW FREEDOM

- **We Design Four Kitchens.** Reprint from *American Home*. 14 cents each.

Southern Gas Association sets April 27-29 for annual convention

THE SOUTHERN GAS ASSOCIATION, which is entering its second half-century, will celebrate the anniversary at its 51st annual convention, to be held from April 27-29 in New Orleans, La.

Some 2,100 delegates are expected to attend the meeting, according to reports from L. H. Ernst, general convention chairman, and Southeast sales manager, Caloric Appliance Corp.

General sessions speakers will include Carl E. Cloud, president, Southern Gas Association, and president, MidSouth Gas Co.; J. Theodore Wolfe, president, A. G. A., and president, Baltimore Gas and Electric Co., "Teamwork for Progress"; and Stephen F. Dunn, vice-president, government relations, National Association of Manufacturers, "Government-Management-Labor Relations."

In addition, pertinent subjects will be discussed by the Panel of Presidents, which represents the three branches of the industry. This year's panelists will be T. T. Arden, president, Robertshaw-Fulton Controls Co.; Glenn W. Clark, president, Mississippi River Fuel Corp.; and R. A. Puryear, Jr., president, Alabama Gas Corp.

The featured luncheon speakers will be Tony Whan, senior vice-president, Pacific Outdoor Advertising Co., "The Priceless Ingredient"; and William Hazlett Upson, author, "You Don't Have To Be Crazy."

Speakers at the accident prevention session will include Justin Wilson, safety consultant; and Harold Bleakley, division manager, ABCO, Inc.

Accounting session speakers will be Robert A. Shiff, president, National Records Management Council (Naremco Services, Inc.); David N. Lieberman, partner, Peat, Marwick, Mitchell and Co., Kansas City, Mo.; Dean M. M. Hargrove, College of Business Administration, University of Tulsa; and Dr. J. H. Lumpkin, Rohrer, Hibler and Replogle, Dallas research and manpower training firm.

Speakers at the distribution session will be George S. Coates, manager, customers department, Southern Counties Gas Co.; Chester L. May, board chairman, Arkla Air Conditioning Corp.; B. T. Mast, Trunkline Gas Co.; and Dr. James M. Sharp, chairman, physics department, Southwest Research Institute.

The human relations session will present Arthur M. Doty, assistant personnel relations manager, Aluminum Co. of America; and Carroll E. French, president, Industrial Relations Counselors Service, Inc.

The sales session will feature D. W. Weir, executive vice-president, Arkansas Louisiana Gas Co.; and L. W. Crump, director of industrial sales, Oklahoma Natural Gas Co. At the residential sales meeting, delegates will hear Al Pollard, Little Rock, Ark., public relations counselor; and S. F. Wikstrom, director of A. G. A.'s PAR Plan. In addition, there will be a presentation of the industry's musical "Gold Star Revue."

A gas air conditioning session will feature S. R. Wood, president, Weatherbuster Corp.; Owen Kuhen, division sales manager, Carrier Corp.; Norbert Hall, division manager, Ready-Power Co.; George C. Briley, district manager, York Corp.; R. K. Eskew, vice-president-engineering, research and development, Arkla Air Conditioning; D. W. Hoppoch, vice-president and general sales manager, Bryant Manufacturing Co.; and Gene Lary, sales director, Comfortemp division, Comfort Products, Inc.

Transmission session speakers will include H. N. Mallon, board chairman, Dresser Industries; and John H. Williams, president, Pipeline Contractors Association.

Pennsylvania Gas Association honors A. G. A.

MORE THAN 350 MEMBERS of the Pennsylvania Gas Association attended the group's recent mid-year sales conference in Philadephia. The majority of the delegates were representatives of company sales departments.

E. H. Smoker (l.) shows award won by A. G. A. to W. H. Regan, chairman, sales promotion committee, Pennsylvania Gas Association, and C. M. Swan (r.), president, Pennsylvania Gas Association. A. G. A. was honored for 1958 research

During the conference, the Pennsylvania Gas Association honored A. G. A. for its outstanding contributions to the gas industry through research and development in 1958. E. H. Smoker, president, The United Gas Improvement Co., and chairman of A. G. A.'s General Research Planning Committee, accepted the award.

The sales conference's speakers and their topics were R. L. Conover, general promotion manager, Equitable Gas Co., water heaters; Henry A. Diekmann, vice-president, Northern Illinois Gas Co., refrigerators; Ira J. Rapson, Detroit district sales manager, Michigan Consolidated Gas Co., incinerators; Roy A. Siskin, utilization research engineer, A. G. A., air conditioners; and Richard L. Duttweiler, sales manager, Iroquois Gas Corp., gas dryers.

One of the highlights of the conference was a presentation of A. G. A.'s program for the promotion and sale of Gold Star ranges by S. F. Wikstrom, director of A. G. A.'s PAR Plan, and Thomas H. Lane, Sr., vice-president of Lennen and Newell, Inc., A. G. A.'s advertising agency.

New England Gas Association elects new officers, directors

THE NEW ENGLAND GAS ASSOCIATION elected new officers and directors during its annual business conference on March 19 and 20 at the Statler Hilton Hotel in Boston.

The new officers are president, George R. Copeland, president, Algonquin Gas Transmission Co.; first vice-president, Gilbert J. Williams, executive vice-president, The Connecticut Light and Power Co.; second vice-president, Harold L. Dalbeck, president, New England Electric System's gas division; treasurer, Burdette A. Johnson; and managing director, Clark Belden.

The elective directors for 1959-60 include R. M. Brigham, vice-president, Springfield Gas Light Co.; A. L. Dowden, supervising engineer, public utilities, Liberty Mutual Insurance Co.; C. H. Dustin, Jr., vice-president and manager, Concord Natural Gas Corp.; J. J. Fahey, vice-president, Haverhill Gas Co.; R. L. Fite, Jr., vice-president, Lynn Gas and Electric Co.; W. A. Fitzsimmons, vice-president, New Haven Gas Co.; G. T. Henry, president, Providence Gas Co.; C. F. Machen, assistant to the president, Boston Gas Co.; R. E. MacIntosh, district manager, Geo. D. Roper Corp.; and C. V. McCaffrey, vice-president of gas operations, Blackstone Valley Gas and Electric Co.

Other new elective directors are C. D. Mitchell, northeast sales manager, American Meter Co.; W. P. Patnode, president, Fall River Gas Co.; H. J. Patterson, president and general manager, Lowell Gas Co.; J. F. Rich, president of the association; H. H. Skinner, president, Skinner and Co., Inc.; H. K. Smith, president, Capital City Gas Co.; and J. L. Turnan, manager, plants and transmission, Worcester Gas Light Co.

The new ex officio directors are A. W. Johnston, vice-president in charge of gas operations, Boston Gas, and E. G. Rhodes, president and general manager, The New Britain Gas Light Co., both of whom are past presidents of the association.

The new division chairmen are F. A. McWeeney, supervisor, bookkeeping department, Connecticut Light and Power, accounting; Peter George, Jr., builder sales supervisor, Worcester Gas Light, commercial-heating-industrial; Max Tappero, northeast district manager, Janitrol heating and air conditioning division, Surface Combustion Corp., manufacturer-distributor; L. R. Hampton, assistant general superintendent, Providence Gas, operating; and E. A. Kelsey, vice-president, sales, The Berkshire Gas Co., residential sales.

During the conference, the association presented awards for outstanding service to four industry executives. Those honored were R. J. Rutherford, president, Worcester Gas Light, and chairman of A. G. A.'s General Public Information Planning Committee; Mr. McCaffrey; Otto Price, vice-president in charge of accounting, Boston Gas, and past treasurer of the association; and Harold Massey, managing director, Gas Appliance Manufacturers Association.

Speakers during the first morning of the conference were Mr. Belden; Andrew W. Johnston, vice-president in charge of gas op-

(Continued on page 48)

Officers of the New England Gas Association are (l. to r., front) George R. Copeland, incoming president; Andrew W. Johnston, retiring president; and Gilbert J. Williams, first vice-president; and (l. to r., rear) Harold L. Dalbeck, second vice-president; Burdette A. Johnson, treasurer; and Clark Belden, managing director. They were elected during the group's annual conference

Andrew W. Johnston (center), retiring president, New England Gas Association, presents the association's awards for outstanding service to (l. to r.) R. J. Rutherford, C. V. McCaffrey, J. J. Quinn—vice-president, Boston Gas—and Harold Massey. Mr. Quinn accepted for Otto Price, who was absent

Bryant plans production of new gas-fired air conditioner

THE UNVEILING of a new gas-fired air conditioner was the highlight of Bryant Manufacturing Co.'s recent annual sales conference in Indianapolis.

During the meeting, Bryant—which manufactures furnaces, boilers, unit heaters, water heaters, and air conditioning equipment—disclosed its merchandising and advertising plans for 1959.

Among these plans is the new air conditioner, which will soon be put into production at the company's Indianapolis plant.

"The introduction of the residential gas-fired air conditioner into Bryant's product line culminates over 10 years of research on gas-fired residential cooling," said Samuel F. Shawhan, president and general manager of the company.

"Consistent with the research policy of Carrier Corp., of which Bryant is an operating division," said Mr. Shawhan, "every conceivable design which used gas as the energy source was evaluated thoroughly before the decision was reached on a design approach for the residential market. This included an investigation of gas engine-driven compressors, steam jet units, absorption and adsorption cycles, and turbine-driven centrifugal compressors," he added.

"Shortly after the merger of Bryant with Carrier in 1955," Mr. Shawhan continued, "and recognizing the trend toward air-cooled and outdoor placement of units, development work was concentrated on a absorption cycle using ammonia and water as the refrigerant and absorbent.

"The unit which will soon go into production is entirely air-cooled, may be installed outdoors, is quiet and automatic in operation, and is practical for add-on application in conjunction with existing furnaces as well as with new Bryant furnaces," Mr. Shawhan concluded.

Following the completion of the initial phases of the project at Carrier's research and development division in Syracuse, prototypes of the gas air conditioner were sent to Bryant's engineering development laboratories at Tyler, Texas.

The following year, as a result of the successful performance of the prototypes in residential installations, Bryant proceeded on a more elaborate field testing program. The company produced "hand-made" machines early in 1958, and, in cooperation with gas utilities, 69 units were put into operation throughout the country in residences served by 42 different gas companies. Based upon the results of the field tests, several minor modifications were incorporated into the final production design.

The Bryant gas-fired air conditioning system consists of two pieces of equipment, an air-cooled absorption refrigeration machine, and a coil package.

The refrigeration machine, which is designed for outside use, produces chilled water. The machine's own pump then circulates the chilled water through the coil package, which is inside the home, mounted in the furnace duct system.

The equipment requires no cooling tower or water supply. The motors for the fan and circulating pump operate on ordinary 115V house wiring and, therefore, need no heavy electrical circuits. The equipment can be adapted to all types of gas. It includes conventional cast iron burners and standard automatic controls. Both cooling and heating are regulated by a conventional wall thermostat.

The present model, No. 450, has a three-ton capacity. A larger model will be field-tested this year and produced in 1960.

Bryant will sell the air conditioner through its regular distribution outlets. Much of the initial production supply will go to the utilities and distributors which participated in the field testing program. Distribution west of the Rocky Mountains will be handled by Day and Night Manufacturing Co. and The Payne Co., operating divisions of Carrier.

David W. Hoppock (l.), vice-president and general sales manager, Bryant Manufacturing Co., explains the features of the company's new gas-fired air conditioning unit to Bart Frary of Bryant-Frary Co.

Peoples Gas Light and Coke allocates $45 million for construction

THE PEOPLES GAS LIGHT AND COKE Co. and its two subsidiary companies expect to spend $45 million for construction in 1959, according to Eskil I. Bjork, chairman of Peoples Gas Light and Coke.

Nearly twice that amount was spent by the three companies in 1958, said Mr. Bjork, explaining that most of that allocation went to complete a large-diameter pipeline expansion program.

Mr. Bjork revealed these figures in a recent talk before the New York Society of Security Analysts.

The three companies have a peak day delivery capacity of 1,734,000,000 cubic feet. They sell natural gas to customers in Chicago, and to gas utilities in the Metropolitan Chicago area and six Midwestern states.

Mr. Bjork said that the major portion of the $45 million expenditure will be met from cash on hand, and from operations.

It is expected that Natural Gas Pipeline Co. of America, the subsidiary which built the $63 million expansion project in 1958, will sell first mortgage bonds later this year to pay off $25 million in bank loans incurred in connection with that project. The 1958 project, which consisted of 511 miles of loop pipeline, added 185 million cubic feet per day to Natural Gas Pipeline's delivery capacity.

In another expansion program, it is expected that Chicago District Pipeline Co., the other subsidiary, will need some $12-13 million in temporary financing for the eventual construction of its third Calumet pipeline, which will run from Joliet, Ill., to the southern limits of Chicago.

Mr. Bjork explained that this new pipeline, for which an application for a certificate is pending before the Federal Power Commission, will be permanently financed by additional mortgage bonds sometime in 1960.

In another development, Mr. Bjork reported a 15-cent per share increase in earnings—to $3.08 per share—in 1958 on the 5,368,158 Peoples Gas Light and Coke shares outstanding at the end of December. Restated net income for 1957 had amounted to $2.93 per share on the 4,920,812 shares outstanding at the end of that year.

Canadian engineers reveal new use for gas in infra-red heating

INFRA-RED RAYS AND NATURAL GAS may combine to create a "heating revolution" in the pulp and paper industry, according to Northern Ontario Natural Gas Co., Ltd., industrial engineers who are currently studying new uses for natural gas in mines, mills and factories throughout the company's northern service territory.

The engineers believe that a new type of space heater which uses natural gas to produce infra-red heat rays may eventually have wide application in northern Ontario's pulp and paper industry.

The new heater could be used where other heating methods are unsatisfactory. An example of a place requiring the use of the new heater is a large plant area with a high ceiling. Infra-red rays alone heat only solid material, not air.

The new infra-red heater, however, would warm the floor and walls, and then cause, in turn, the room temperature to rise to a comfortable level.

Some plant areas are so large that forced-air space heating is impractical. However, according to R. R. Colpitts, Northern Ontario Natural Gas industrial sales manager, the new infra-red heating technique would be effective, regardless of the size of the plant area.

The new heating units utilize a recently developed ceramic catalyst material which converts the heat given off by the gas flame into infra-red rays.

Northern Ontario Natural Gas engineers are also studying a gas process for direct drying of pulp and paper. Steam is now generally used for this purpose. In many cases, however, it may be possible to pass the paper sheet directly over an open flame for more rapid drying.

Northern Ontario Natural Gas already supplies gas to every major pulp and paper mill in northern and northwestern Ontario. The gas is used by the mills both for producing the steam employed in the pulp and paper manufacturing process, and for firing the lime kilns.

Kansas-Nebraska honored for advertisements

KANSAS-NEBRASKA NATURAL GAS Co., Inc., has been selected to receive the George Washington Honor Medal Award by the Freedoms Foundation of Valley Forge, Pa.

The award is for "an outstanding achievement in helping to bring about a better understanding of the American Way of Life during 1958."

Kansas-Nebraska was honored as a result of a series of institutional advertisements which it placed in daily and weekly newspapers in its operating areas in Nebraska, Kansas and Colorado. The theme of the advertisements was "What Makes America Great?" The advertisements pointed out various fundamental beliefs in, and achievements of, the American economic system and way of life.

Following publication of the advertisements, Kansas-Nebraska received scores of congratulatory messages from stockholders, newspaper editors, and members of the general public.

Ebasco discloses affiliation

EBASCO SERVICES, INC., management consulting, engineering and construction firm, has completed arrangements for its affiliation with Pacific Planning and Research, Inc., a city planning firm with offices in Sacramento and Palo Alto, Calif. The affiliation, which marks the continued expansion of Ebasco in the field of community planning, will provide Pacific Planning with additional resources in related fields, such as city and regional planning, urban renewal, urban economics and natural resource planning.

A. G. A. reports fourth quarter and annual accident statistics

THE SAMPLE OF 86 companies which reported fourth quarter accident data to A. G. A. represents 38 per cent of the total number of employees within the gas utility and pipeline industries. These employees, who worked almost 39 million hours during this period, averaged 8.50 disabling injuries per million man-hours of exposure which resulted in an average of 509 days lost per million man-hours.

Statistics in the first full year of accident experiences of this sample group of companies show that the frequency of accidents was lowest in the first quarter and highest in the third quarter. The second and fourth quarters ranked second and third, respectively. Severity rates followed much the same pattern: the difference was that the fourth quarter outranked the second quarter, because two fewer fatalities occurred in the current quarter.

On an annual basis, the sample indicates that the gas industry may not achieve a new safety record this year. The frequency rate for the four quarters was 8.41 disabling injuries per million man-hours worked, as compared with the industry's low of 8.08 (revised) disabling injuries per million man-hours during 1957. The severity rate for the total of the four quarters in 1958 increased 23 per cent over 1957.

Vehicle accident statistics were furnished by 70 of the 86 sample companies during the fourth quarter. These companies, which represent 32 per cent of the gas industry's total employees, operated 19,249 vehicles almost 55 million miles. The number of accidents per 100,000 miles traveled during the fourth quarter was 1.60, a figure second to the high of 1.72 accidents per 100,000 miles traveled which occurred during the first quarter. For the full year of 1958, the quarterly data indicates an increase in the rate of vehicle accidents from 1.40 accidents per 100,000 miles traveled in 1957 to 1.49 in 1958.

GAS EMPLOYEE QUARTERLY ACCIDENT EXPERIENCE

(FOUR QUARTERS, 1958)

	1957	1958				
	Annual (Revised)	First Quarter (Sample)	Second Quarter (Sample)	Third Quarter (Sample)	Fourth Quarter (Sample)	Total, Four Quarters
Number of reporting companies	433	86	86	86	86	86
Average number of active employees	192,355	76,554	77,645	78,409	76,784	77,348*
Number of injuries						
Fatality	15	1	3	4	1	9
Permanent total disability	1	0	0	0	0	0
Permanent partial disability	107	4	6	2	18	30
Temporary total disability	3,023	284	305	362	311	1,262
Total	3,146	289	314	368	330	1,301
Days charged						
Fatality	90,000	6,000	18,000	24,000	6,000	54,000
Permanent total disability	6,000	0	0	0	0	0
Permanent partial disability	30,952	2,302	3,436	125	7,048	12,911
Temporary total disability	53,108	4,077	5,299	5,609	6,745	21,730
Total	180,060	12,379	26,735	29,734	19,793	88,641
Frequency Rate	8.08	7.54	8.18	9.42	8.50	8.41
Severity Rate	462	323	696	761	509	572
Vehicle accident statistics						
Average number of employees	150,206	66,114	69,704	65,143	64,720	66,420*
Number of vehicles	39,175	18,440	19,157	18,086	19,249	18,733*
Vehicle miles traveled (000)	487,732	50,288	54,908	48,021	54,532	207,749
Number of reportable accidents	6,848	863	653	702	872	3,090
Number of personal injuries	212	45	28	44	31	148
Accidents per 100,000 miles traveled	1.40	1.72	1.19	1.46	1.60	1.49

* Average of four quarters.

Gas utilities issue annual reports of operations for 1958

THE FOLLOWING ARE CAPSULE REPORTS of the 1958 operations of a number of gas companies. The statistics have been gleaned from the companies' annual reports. Summaries of the operations of other companies will appear in a subsequent issue.

● **The Columbia Gas System, Inc.,** reported a net income of $38,913,000, or $1.44 per share of common stock, for 1958. These figures compare with the 1957 totals of $34,358,000, or $1.31 per share. Earnings for 1958 include $3,003,000, or about 11 cents per share, for contingencies. Net income and gross revenue figures for both 1958 and 1957 have been adjusted to reflect the acquisition (just before the end of 1958) by Columbia Gas of the facilities of Gulf Interstate Gas Co. In 1958, gas sales by Columbia Gas companies rose to a new high of 699,298,000,000 cubic feet from the previous peak (set in 1957) of 646,414,000,000 cubic feet. Gross revenue for 1958 was $427,443,000, equal to a rise of 13.6 per cent from the 1957 total of $376,220,000. During 1958, Columbia Gas spent about $82,886,000 for construction of new facilities; Gulf Interstate, prior to its acquisition by Columbia Gas, spent $51,072,000 for expansion.

● **The Connecticut Light and Power Co.** recorded operating revenues totaling $78 million, an increase of 4.1 per cent, for 1958. Gas revenues were $10,850,465, a gain of 14.7 per cent (or $1,388,088) over 1957. Operating expenses for 1958 amounted to $39,600,000, about the same as in 1957. Total taxes for 1958 were $13,800,000. Earnings per average share of common stock outstanding equaled a new record of $1.41, an increase of 17 cents per share over the 1957 figure. The company spent about $35 million on expansion.

● **Consolidated Natural Gas Co.** reported 1958 net earnings of $25,766,353, or $3.14 per share on the 8,212,552 shares outstanding, a slight drop from the 1957 figures of $27,829,026, or $3.39 per share. The 1958 earnings included a nonrecurring profit (after taxes) of $1,732,000 from the sale of property. The company explained that the lower net earnings were due primarily to the higher costs of gas, labor, materials and services, and that the principal companies in the system have already filed for rate increases totaling $32 million annually. Gas sales revenues for 1958 were a record $296,195,000, an increase of 9 per cent over 1957 sales. Total gas sales were 501,807,000,000 cubic feet. Operating costs for 1958, including depreciation and taxes, amounted to $271,578,000, an increase of $24,654,000 (or 10 per cent) over 1957. Total taxes were $33,027,000.

● **The Consumers' Gas Co. of Toronto** had 1958 consolidated net earnings on common shares of $2,323,623, an increase over the 1957 figure of $1,747,811. Earnings per common share in 1958 were $1.27, slightly above 1957's $1.20 per share. Gas sales accounted for $28,527,121 of the $28,871,900 total 1958 operating revenues. Operating expenses totaled $24,840,679. Construction expenditures for 1958 reached the all-time high for one year of $27,445,000.

● **Consumers Power Co.** reported earnings for 1958 (after preferred dividends) of $27,782,000, about $1,225,000 lower than the 1957 figure. Gross operating revenues for 1958 were $227,631,000, an increase of $6,169,000 over 1957. This increase, however, was more than offset by a net increase of $7,431,000 in various expenses and income deductions. Gas revenue in 1958 ($76,389,000) was up 5.2 per cent over 1957. Gas sales totaled 83,813,000,000 cubic feet. Earnings on shares outstanding at the end of 1958 were $3.15 per share, slightly lower than the 1957 figure of $3.30. Dividends per share in 1958 were $2.40. Construction expenditures, exclusive of gas fields, during 1958 totaled $90,356,000.

● **The Dayton Power and Light Co.** had total 1958 operating revenues of $82,538,000, an increase over the 1957 figure of $78,138,000. Gas revenues totaled $29,553,000 in 1958, a rise from 1957's $26,564,000 total. Operating expenses in 1958 amounted to $69,426,000, slightly above the 1957 total of $65,643,000. Earnings on common stock for 1958 totaled $9,593,000, a rise from the $9,366,000 reported in 1957. Net earnings per share in 1958 equaled $3.21, slightly higher than the 1957 figure of $3.15. The dividend paid per share each year was $2.40. Federal income taxes per share in 1958 amounted to $3.11, less than the 1957 tax of $3.34.

● **Houston Natural Gas Corp.** reported consolidated operating revenues of $34,359,055, a record total, and a rise of 28.7 per cent over 1957. After operating revenue deductions, $5,331,081 remained as net operating revenue, a figure equal to an increase of 28.9 per cent (or $1,194,713) over 1957. Consolidated net income totaled $3,035,413. After payment of preferred and preference dividends, $2,307,591 was available for common stock earnings. On the basis of 1,355,010 shares outstanding at the end of 1958, these common stock earnings amounted to $1.70 per share, higher than the $1.41 in 1957, when there were only 1,148,718 shares outstanding. Total operating revenue deductions of $29,027,974 were $6,457,717 higher than the 1957 deductions. Gas purchases and taxes accounted for more than 60 per cent of the 1958 increase in deductions.

● **The Kansas Power and Light Co.** had total operating revenues of $49,628,096 in 1958, a figure slightly above the 1957 total of $47,730,405. Gas revenues amounted to $16,465,559 in 1958, a little more than the 1957 total of $15,891,125. Total operating expenses in 1958 were $40,443,938, just higher than the $39,143,019 figure in 1957. Gross income in 1958 was $9,187,479, an increase from the $8,605,029 reported in 1957. After deductions, net income in 1958 was $7,141,273, higher than the 1957 total of $7,000,616. Earnings per common share in 1958 equaled $2.09½, just above the 1957 earnings of $2.04½. Dividends per common share for 1958 equaled $1.36, higher than the $1.30 in 1957 because of an extra year-end dividend of six cents per share.

● **New Jersey Natural Gas Co.** reported gross revenue for 1958 of $14,785,475, an 18.5 per cent jump from 1957's total of $12,480,741. Of the total revenue, $3,001,390 went to pay taxes, and another $2,907,643 was allocated for construction expenditures. Operating expenses rose 19.4 per cent, from $10,715,757 in 1957 to $12,790,361 in 1958. The company reported a 25.4 per cent increase in gas sales, from 6,952,000,000 cubic feet in 1957 to 8,715,000,000 in 1958. Earnings per share of common stock were $2.61 in 1958, higher than the $2.29 recorded in 1957. The dividend rate per share of common stock was $1.60 in 1958, $1.40 in 1957. The dividend rate per share of preferred stock was $1.20 both years.

● **Niagara Mohawk Power Corp.'s** consolidated net income for 1958 totaled $30,383,000, an increase from the $26,430,000 total in 1957. After dividend requirements on preferred stock, earnings per share of common stock in 1958 amounted to $2.12, higher than the $1.91 recorded in 1957. Total operating revenues in 1958 were $263,863,000, more than the $254,969,000 reported in 1957. Sales of natural gas totaled 50,630,000,000 cubic feet, an increase of 13.2 per cent over the 1957 total. Construction expenditures in 1958 amounted to $101,500,000.

● **Northern Illinois Gas Co.** reported total revenue for 1958 as $91,058,000, about 8 per cent higher than the total of $84,409,981 in 1957. Earnings per share of common stock amounted to $1.41, an increase of five cents per share over 1957. Quarterly dividends on common stock in 1958 equaled 22 cents per share, the same as in previous years. Total operating expenses in 1958 were $78,279,470, higher than the total of $72,698,735 in 1957. Construction expenditures in 1958 were $22,047,000, an increase of about $3,500,000 over 1957. Gas sales totaled 1,293,300,000 therms, a rise of 6.4 per cent over the 1957 total of 1,215,200,000 therms.

● **Northern Natural Gas Co.** had a net income in 1958 of $15,500,000, an increase of $300,000 over 1957. This increase, however, was not sufficient to compensate for the new shares issued in 1958 and, as a result, common stock earnings per share dropped from $1.87 in 1957 to $1.62 in

1958. Total annual revenues increased from $128,615,000 in 1957 to $138,628,000 in 1958. Total operating expenses were $117,087,059 in 1958, higher than the $106,902,216 total in 1957. Gas sales amounted to $132,345,172 in 1958, an increase from the total of $123,268,726 recorded in 1957. The company's gas reserves increased by more than one trillion cubic feet during 1958, boosting the total to a new high of 12.6 trillion cubic feet.

● **The Peoples Gas Light and Coke Co.** reported its 1958 consolidated net income as $16,536,005, or $3.08 per share of common stock, higher than the 1957 income of $14,436,642, or $2.93 per share. The 1958 earnings are based on a 9 per cent greater number of shares than were outstanding in 1957. Revenues from gas sales increased 9.9 per cent from $166,059,990 in 1957 to $179,738,631 in 1958. Total revenues in 1958 were $188,080,816, above the 1957 total of $171,262,024. Total operating expenses in 1958 were $159,775,543, more than the $147,007,726 recorded in 1957. On Feb. 21, 1959, the company placed into effect an increase in rates of about $2,500,000 on an annual basis. This increase was in addition to the increase of $5 million granted on May 23, 1958.

● **Philadelphia Electric Co.** had total revenues in 1958 of $247,745,329, an increase of $11,702,944 (or 5 per cent) over the 1957 total. Gas revenues increased 15.3 per cent (or $5,037,915) from the 1957 figure to $37,923,139 in 1958. Operating expenses and other revenue deductions in 1958 were $200,095,650, a rise of 5.3 per cent over 1957. Earnings per share of common stock amounted to $2.76 in 1958, an increase from $2.60 in 1957. Dividend payments in 1958 continued at the rate of $2 per share. The dividend rate was increased to $2.24 per share beginning with the March 1959 payment. During 1958, $118,574,000 was allocated for construction expenditures. Gas output increased 16.2 per cent over 1957 to a record 28.5 billion cubic feet. Sales of gas reached a new record of 25.6 billion cubic feet, an 11.3 per cent increase over 1957.

● **Providence Gas Co.** reported total net earnings available for common stock in 1958 of $642,575, higher than the total earnings of $535,560 in 1957. These earnings amounted to 60 cents per share in 1958, more than the 50 cents per share payment in 1957. The company continued to pay its usual dividend of 56 cents per share. Operating expenses, exclusive of direct taxes and depreciation, amounted to $7,660,056 in 1958, an increase of $1,191,039 over 1957. Total taxes in 1958 were $1,028,355, a rise of $36,006 over 1957. Capital expenditures of the company in 1958 amounted to about $3,016,300. Total gas revenues in 1958 were higher than those in any previous year: they amounted to $10,170,220, an increase of $1,402,379 over 1957.

Brooklyn Borough Gas drivers win safety awards for 1958

BROOKLYN BOROUGH GAS CO. has completed another successful safety drive.

During 1958, company drivers had two preventable automobile accidents. In recognition of this low figure, each of the firm's 81 authorized drivers was awarded a United States government savings bond.

The bonds were presented by Walter M. Jeffords, company president, at a recent meeting. A. Lee Alcock, chairman of the Executive Safety Council, conducted the meeting. Sidney Hancock of Long Island Lighting Co. and Patrolman John Haugh of the New York City Police Department's Safety Education Bureau appeared as guest speakers.

Mr. Jeffords said that both the safety program and the awarding of the bonds will continue during 1959.

A. G. A. launches study on ignition system service problems

FIFTY-THREE SERVICE and training supervisors and appliance servicemen recently attended a two-day seminar on a field survey of ignition system service problems. The meeting was held at The East Ohio Gas Co. in Cleveland.

The field survey is being sponsored by A. G. A.'s Technical Advisory Group for General Utilization (a section of the Committee on Domestic Gas Research) as part of PAR Project DA-6-GU, "Ignition of Gases." (This survey is separate and distinct from the National Appliance Field Observation Program, another A. G. A. project.)

Under this new research program, each of 24 gas companies is using from one to 15 experienced servicemen to collect data on field complaints about ignition systems. These investigations, which started on March 1, will extend for a minimum of one year from that date.

The "Ignition of Gases" project is designed to gather information about the extent of ignition system service calls made in various areas of the country in terms of percentages of all service calls made in those areas.

In addition, studies will be made about the causes for ignition system complaints, and about the remedial steps which are currently taken to correct ignition problems. The data will be used to guide future fundamental ignition research, and to pave the way toward new and improved methods of igniting gases.

During the recent Cleveland seminar, an "Ignition System Field Survey Manual," survey data sheets, and a test kit were distributed to the delegates.

Participants in the seminar included Bud Burke, supervisor of technical training, East Ohio Gas; W. B. Kirk, chief research engineer, and James Griffiths, senior research engineer, A. G. A. Laboratories; and George Bartosh, training supervisor, Minneapolis Gas Co.

Other participants were Edward O. Abel, Baso, Inc.; William Roecher, General Controls Co.; Edward P. McHenry, Minneapolis-Honeywell Regulator Co.; Michael Harenchar, Robertshaw-Fulton Controls Co.; Charles Lamar, Harper-Wyman Co.; and Walter W. Scott, White-Rodgers Electric Co.

Four speakers at the recent Cleveland seminar on ignition system service problems discuss the new "Ignition System Field Survey Manual." They are (l. to r.) James Griffiths, senior research engineer, A. G. A.; George Bartosh, training supervisor, Minneapolis Gas Co.; W. B. Kirk, chief research engineer, A. G. A.; and Bud Burke, supervisor of technical training, The East Ohio Gas Co.

Long Island Lighting opens new service center in Huntington

A NEW LONG ISLAND LIGHTING CO. service center was opened formally during February at Greenlawn in Huntington.

Special ceremonies marked the dedication of the center, which was constructed to increase and expedite service to the company's gas and electric customers in western Suffolk.

E. C. Duffy and Howard B. Wakeman, Long Island Lighting senior vice-presidents, conducted an inspection tour of the 15-acre, $950,000 installation for Ernest Johnson, Huntington's town supervisor, and other local officials.

Some 120 employees, including office personnel, are located at the new center, which serves as a base for sections of the overhead lines and services, underground lines and mains, customer service, transportation, and stores departments.

Mr. Duffy disclosed that local taxes to be realized from this center for 1959 will be about $23,000, $12,900 of which will be school taxes, and $10,100 of which will be town taxes.

Highlights of cases before the Federal Power Commission

Bureau of Statistics, American Gas Association

Certificate cases

● **Colorado Interstate Gas Co.** has applied for permission to construct a new 359-mile transmission line of 20-inch to 34-inch pipe from the West Panhandle Field of Texas to Denver. The company also proposes to construct 86 miles of pipeline, in order to tie in new reserves in Kansas, Oklahoma and Wyoming; to construct 155 miles of 34-inch transmission line between Green River and Provo, Utah; and to construct 32 miles of six-inch transmission line in Colorado to continue service to the city of Trinidad. Total cost of these projects is estimated at $91.2 million. In addition, Colorado Interstate Gas proposes to build nine compressor stations with a total capacity of 45,980 horsepower; to add a total of 24,600 horsepower to four existing stations; and to retire both the major portion, about 275 miles, of its Bivins, Texas-Denver transmission line and seven compressor stations with a combined capacity of 27,115 horsepower. All of these facilities would also be used to increase the daily delivery capacity of Colorado Interstate Gas' existing pipeline system in the Rocky Mountain area by some 49 million cubic feet, in order to meet future firm peak requirements of existing customers. Colorado Interstate Gas also proposes to sell up to 239 million cubic feet of natural gas daily to El Paso Natural Gas Co. at a point near Green River. In addition, Colorado Interstate Gas would transport for El Paso Natural Gas up to 478 million cubic feet of gas daily from Green River to Provo. This additional gas would be purchased by El Paso Natural Gas from Pacific Northwest Pipeline Corp. at Green River.

● **Texas Eastern Transmission Corp.** has applied for authorization to construct about 3,100 additional horsepower at existing compressor stations, and to place in gas service and operate both 189 miles of existing 20-inch line from Middletown, Ohio, to Moundsville, W. Va., and 12,500 horsepower in existing compressor horsepower capacity. This reactivation and construction, the cost of which is estimated at $2.3 million, would enable Texas Eastern Transmission to pick up from Texas Gas Transmission Corp., at Lebanon, Ohio, 100 million cubic feet daily for the account of Hope Natural Gas Co.

● **Texas Gas Transmission Corp.** proposes to construct about 165 miles of 30-inch loop line; 81 miles of 26-inch loop line; 104 miles of various diameter supply line; 14,000 horsepower in additional compressor capacity; a new 1,760-horsepower compressor station; and other appurtenant facilities. These projects, the cost of which is estimated at $39.6 million, will enable Texas Gas Transmission to gather and transport up to 100 million cubic feet of natural gas daily, on a firm basis, for the account of Hope Natural Gas Co. This gas would be purchased or produced by Hope Natural Gas from fields in, and offshore from, Louisiana. Texas Gas Transmission would deliver the gas to Texas Eastern Transmission Corp. at their existing interconnection near Lebanon, Ohio.

● **Texas Illinois Natural Gas Pipeline Co.** proposes to add 2,000 compressor horsepower to each of eight main line stations located in Texas, Arkansas, Missouri and Illinois. The cost of these additional facilities is about $3.9 million. The additional horsepower would increase the peak day capacity of the company's system by 20 million cubic feet of gas.

● **Transcontinental Gas Pipe Line Corp.** has received authorization to construct two 16-inch laterals, totaling approximately 15 miles, at an estimated cost of $2.1 million. This construction would enable the company to receive natural gas from offshore Louisiana.

Rate cases

The FPC has suspended all but $470,500 of a proposed $26 million, or 12.9 per cent, annual wholesale natural gas rate increase by **El Paso Natural Gas Co.** The $470,500 which the Commission did not suspend represents increases in rates for sale of gas to industrial customers, not subject to suspension under the Natural Gas Act. The increase would have affected 34 wholesale customers in Texas, New Mexico, Arizona and California, and would have been in addition to one for $16.6 million which El Paso Natural Gas has been collecting subject to refund since Jan. 1, 1958, and one for $17.9 million which became effective, subject to refund, in April 1955.

● **Natural Gas Pipeline Co. of America** has applied for a $3.9 million, or 5.8 per cent, increase in natural gas rates. The company, which cited increased operating costs, is seeking a 6¾ per cent rate of return, instead of the 6¼ per cent return claimed in its pending rate increases. The increase would affect 17 wholesale customers in Kansas, Illinois, Indiana, Iowa and Wisconsin.

● **North Penn Gas Co.'s** proposed $389,400 annual wholesale natural gas rate increase has been suspended. The 8.5 per cent annual gas rate increase, which would have affected six wholesale customers in New York and Pennsylvania, would have been in addition to one for $392,800 now being collected, subject to refund, in another proceeding. North Penn Gas based its proposed filing on increases in the cost of gas which it purchases, and on its claim for 6½ per cent rate of return, instead of the 6¼ per cent return in its pending increase.

● **Texas Illinois Natural Gas Pipeline Co.** has filed for a proposed $3.8 million, or 7.6 per cent, annual increase in natural gas rates. The filing would affect 15 customers in Illinois, Indiana, Missouri, Kansas and Wisconsin. The company based its filing on general increases in operating costs, and on its claim for a 6¾ per cent rate of return, instead of the 6 per cent return in its pending rate increase filing.

SUMMARY OF INDEPENDENT GAS PRODUCER RATE FILINGS—FEBRUARY 1959

	Number	Annual Amount
Tax rate increases allowed without suspension	2	$ 635
Other rate increases allowed without suspension	26	107,858
Rate increases suspended	39	1,454,146
Total rate increases	67	1,562,639
Tax rate decreases allowed without suspension	3	1,343
Other rate decreases allowed without suspension	2	204,946
Total rate decreases	5	206,289
Total rate filings	583	–
Total rate filings acted on from June 7, 1954, to March 1, 1959	36,635	–
Rate increases disposed of after suspension	8	403,838
Amount allowed	2	13,346
Amount disallowed	3	46,074
Amount withdrawn	3	344,418
Rate increases suspended and pending on March 1, 1959	2,140	$92,198,078

United Gas Improvement announces personnel changes in operating department

THE UNITED GAS IMPROVEMENT CO. has announced a group of personnel changes in its operating department.

W. R. Bollendorf, Jr., has been named operating manager of the Lehigh Valley gas division. He joined the company's Harrisburg gas division in 1940, and has been its operating manager since 1955. Mr. Bollendorf succeeds Henry W. Parker, former Lehigh Valley manager, who died on Jan. 1.

Harry R. Ottey, who has been distribution superintendent in Harrisburg, will replace Mr. Bollendorf as that division's operating manager. Mr. Ottey joined the firm in 1948, and was named to his previous position in 1954.

John S. Beard has been promoted to superintendent of gas supply and services in Harrisburg. He joined the company's Reading gas division in 1949, and has been serving there as main and service superintendent.

Irving P. Cook, formerly staff engineer in Harrisburg, has been appointed distribution superintendent there. He started with the firm in 1957.

W. L. Glessner, who has been customer service superintendent in Harrisburg, has been named staff assistant in the operating department in Philadelphia. He joined United Gas Improvement in 1934.

Harry T. Maycock, formerly distribution engineer in the Lancaster County gas division, has moved to Reading as main and service superintendent. He joined the company in 1948.

Robert L. Yeager, who has been production superintendent in Harrisburg, has transferred to Lancaster as distribution engineer. He joined the company in 1949.

Personal and otherwise

McMains wins PR award

VIRGIL McMAINS has won Kansas-Nebraska Natural Gas Co., Inc.'s 1958 Public Relations Award. Mr. McMains is the company's local manager at Oberlin, Kan. The award is granted each year to a Kansas-Nebraska employee for "an outstanding accomplishment in the field of public relations beyond the normal course of duties." Mr. McMains was presented with an engraved plaque and a $100 United States savings bond. He was cited for his "noteworthy contributions that reflected credit to his company."

Sales group elects officers

THE MICHIGAN GAS SALES CONFERENCE elected new officers at its recent third annual meeting in Grand Rapids. The officers are Robert F. Hagemann, Jr., new business manager, Southeastern Michigan Gas Co., president; Ed Hoskens, sales manager, Citizens Gas Fuel Co., vice-president; Milton Kendrick, assistant to the vice-president for sales, Michigan Consolidated Gas Co., secretary-treasurer; and Walter Kurdelski, district sales manager, Michigan Consolidated Gas, chairman for 1959.

Hartford Gas promotes Carlson, Barger, Kryzak, Davis, Taylor, Johnson, Turner

THE HARTFORD GAS CO., Hartford, Conn., has announced seven personnel changes.

Howard R. Carlson has been appointed to the new post of director of advertising and public relations. Mr. Carlson, who joined the company in 1924, was formerly general sales manager. He is a member of A. G. A., the Connecticut Professional Engineers Association, and the New England Gas Association.

Richard B. Barger has been named to succeed Mr. Carlson as general sales manager. Mr. Barger, who has held several positions in the firm's operating and sales division, has been heating and air conditioning sales manager since 1957. He is a member of A. G. A., the American Society of Heating and Air Conditioning Engineers, and the New England Gas Association.

E. Ralph Kryzak, formerly manager of the company's Manchester division, succeeds Mr. Barger as heating and air conditioning sales manager. Mr. Kryzak will also be in charge of the company's new building division. He joined the company in 1953 as a representative in the heating and air conditioning division.

George L. Davis, previously a sales representative, has been appointed manager of the Manchester division. Mr. Davis has been with the company for 11 years.

A. Chandler Taylor, Jr., has been named assistant to the president. Mr. Taylor, who joined the company in 1936, was formerly general superintendent of the operating department. He is a member of A. G. A. and the New England Gas Association.

Herbert E. Johnson has been appointed general superintendent of the operating department. Mr. Johnson, who was formerly assistant to the president, has been with the company since 1936. He is chairman of the operating division of the New England Gas Association, and is a member of A. G. A.

Robert B. Turner, who has been purchasing agent since 1945, has been named supervisor of the company's stores division. He joined the company in 1935. Mr. Turner is a member of the Connecticut Purchasing Agents Association.

Rocky Mountain group installs new officers, directors

New officers of the Rocky Mountain Gas Association were installed at a recent meeting of the Association. The new officers and directors are (l. to r., seated) Roy G. Munroe, field secretary; Harold P. Risley, secretary-treasurer; Glenn M. Waddell, president; N. F. Patrick, vice-president; Sam J. Neely, vice-president; and Paul Young, retiring president; (l. to r., middle row) F. V. Wedlick, Elmer A. Hunter, George Mossbrucker, and Frank L. Welle; (l. to r., back row) Eugene Groves, James Woodward, Gerald Holtzinger, John H. Nicholson, Paul Walden, and L. John Pohle. Two other members of the board of directors who were not at the meeting are G. M. Musick and E. M. Samuelson

Names in the news—a roundup of promotions and appointments

UTILITY

David Packard has been elected to the board of directors of Pacific Gas and Electric Co. Mr. Packard is president of Hewlett-Packard Co., manufacturer of precision electronic instruments.

Peter Kiewit has been named to the board of directors of Northern Natural Gas Co. Mr. Kiewit is president of Peter Kiewit Sons, Inc., contractors.

South Jersey Gas Co. has elected two new members to its board of directors. They are **John M. Seabrook,** president, chief executive officer and a director of Seabrook Farms Co., and **Frank H. Wheaton, Jr.,** president of Wheaton Glass Co.

Jack P. Harris has been appointed to the board of directors of The Kansas Power and Light Co. Mr. Harris is president of Hutchinson Publishing Co., and editor and publisher of the *Hutchinson News*. He replaces **Robert J. Laubengayer,** who died last December.

The Ohio Fuel Gas Co. has announced four personnel changes. **John A. Croft** has been promoted to supervisory engineer and Columbus group system sponsor for The Columbia Gas System Service Corp. He joined the system eight years ago, and has served since 1954 as distribution department general engineer for Ohio Fuel Gas. **William G. Hickle** has been appointed general engineer in the plant operations department of Ohio Fuel Gas. He started with the company in 1953, and has been an engineer in the Columbus district for the past four years. **Paul W. Rogers,** vice-president and chief engineer, has been elected a director of the company. He joined the firm 25 years ago, became chief engineer in 1953, and was elected vice-president in 1956. **Herbert A. Titsch,** manager of the production department, has been elected a vice-president of Ohio Fuel Gas. He started with the company 32 years ago, became an assistant vice-president last year, and was named manager of the production department in January.

Reginald F. McCoy and **P. P. Stathas** have been elected to the board of directors of Pennsylvania and Southern Gas Co. Mr. McCoy is executive vice-president of John F. McNair, Inc., Laurinburg, N. C. Mr. Stathas is president of Duff and Phelps, Inc., Chicago.

Three personnel changes have been announced by Cincinnati Gas and Electric Co. **Arthur C. Cherry** has been appointed assistant to the vice-president in charge of the gas department. Mr. Cherry joined the firm in 1928, and was previously manager of the gas operating department. **James A. Whelpley** has become manager of gas operations, and **James P. Stephens** has been named his assistant. Both served formerly as engineers.

Dean A. McGee has been elected to the board of directors of Oklahoma Natural Gas Co. Mr. McGee is president of Kerr-McGee Oil Industries, Inc. He replaces **General William S. Key,** who died recently.

Mrs. Marjorie Lillenberg has been named home service manager of The Peoples Natural Gas Co. She was previously home service director of Oklahoma Natural Gas Co.

Chester L. May, chairman of the board and a director of Arkla Air Conditioning Corp., has been elected a director of Rio Grande Valley Gas Co. He replaces **O. P. Wilson,** former board chairman, who died recently.

The Brooklyn Union Gas Co. has announced two appointments. **Michael Anuskiewicz** has been named assistant chief engineer and **William B. Cameron** has been promoted to engineer of development and planning. Mr. Anuskiewicz, who joined the company in 1929, has been engineer of development and planning since 1947. He is vice-chairman of A. G. A.'s Distribution Committee. Mr. Cameron, who started with the firm in 1933, has served in the commercial, auditing, manufacturing, and construction departments.

Several promotions have been announced by Arkansas Louisiana Gas Co. **John W. Denhollem** has been appointed to the new position of superintendent of drilling and production in the production and exploration division. He joined the firm in 1945, and became production superintendent in 1956. **Wyatt H. Thomas** has been promoted to chief production engineer. He joined the company in 1956 as production engineer. **Frank P. Yarbrough** has been named production coordinator. He joined Arkansas Louisiana Gas early in 1953, and became a production engineer later in the same year. **Edward R. Gilmore** has been appointed a consultant by Reynolds Gas Regulator Co., a wholly owned subsidiary of Arkansas Louisiana Gas. Since 1951, Mr. Gilmore has been chief engineer for Lancaster Meter Parts Co., Lancaster, Ohio.

MANUFACTURER

Robert O. Geddes has been named manager of residential kitchen sales for St. Charles Manufacturing Co. He joined the company in 1952, and has served since 1957 as assistant sales manager in St. Charles, Ill.

Chattanooga Royal Co. has announced two personnel changes. **Steven K. Kite-Powell** has been appointed manager of the barbecue grill division. He was formerly field sales manager for barbecue grills. **M. Hayne Hamilton** has become advertising and sales promotion manager.

Ralph A. Purcelli has been named general manager of Rockwell Manufacturing Co.'s Porterville, Calif., plant. He joined the firm in 1936, and has served since 1957 as executive assistant to the general manager of the company's Barberton, Ohio, plant. Mr. Purcelli replaces **Charles N. Perry,** who has resigned.

Norge Division of Borg-Warner Corp. has announced five personnel changes. **William Golding** has been appointed utility administration coordinator. He will be in charge of utility appliance advertising and marketing. Mr. Golding started with Norge in 1956 as kitchen appliance promotion manager. **Edward A. Leary** has become national sales promotion manager. **Dan G. Fanelli** has been named to the new position of built-in range sales manager. **Oscar W. Fast** has been named Eastern built-in range sales representative. **Robert L. Brookman** has been appointed to the new position of sales manager of clothes dryers and combination washer-dryers. He joined Norge in 1957, and served recently as midwestern manager of the utility division.

E. W. Murray has been appointed district sales manager for Robertshaw thermostat division of Robertshaw-Fulton Controls Co. He joined the firm in 1954, and has been serving recently in the Cincinnati office.

Harold L. Stevens has been promoted to regional manager for Maytag Northwest Co., distributor of Maytag appliances in the Pacific Northwest. He joined Maytag in 1951, and has served since 1956 as advertising and sales promotion manager for Maytag Northwest. **Fred Maytag II,** president, The Maytag Co., has been elected a director of Minneapolis-Honeywell Regulator Co.

Jerry Allen has been appointed manager of the Metropolitan Chicago division of Caloric Appliance Corp. He was formerly Midwest sales promotion manager.

Frank E. Purcell has been promoted to sales manager of packaged equipment for the Unitary equipment division of Carrier Corp. He joined the company in 1940, and has been sales manager of the national buyer department since 1956. Mr. Purcell succeeds **Burton T. Kehoe,** who was recently appointed executive vice-president of Colorado Research Corp., a subsidiary of Carrier.

OTHER

William B. Poor has been elected senior vice-president of Ford, Bacon and Davis, Inc. He joined the firm in 1948. He is a member of A. G. A.

Several appointments have been announced by the National Association of Corrosion Engineers. **T. R. B. Watson, J. C. Spalding** and **E. F. Moorman** have been elected directors of the association for three years each. Mr. Watson, founder of Corrosion Services, Ltd., Toronto, will represent the Canadian region. Mr. Spalding, who is with Sun Oil Co. in Dallas, will represent the southcentral United States. Mr. Moorman, research engineer, International Harvester Co., will represent the northcentral United States. **T. J. Maitland,** electrolysis and protection engineer, American Telephone and Telegraph Co., has been named chairman of the association's technical practices committee. He succeeds **E. C. Greco** of United Gas Corp. in Louisiana. **D. W. Juenker,** assistant professor of physics at Notre Dame University, has received the association's 1958 Young Author Award for his paper on "Cavity Formation in Iron Oxide." The award is given each year to the author of "the most meritorious technical paper" published during the year in *Corrosion,* the association's monthly periodical.

Stone and Webster Engineering Corp. has announced four personnel changes.

Fred W. Argue, formerly engineering manager and a vice-president, has been elected executive vice-president. Mr. Argue, who joined the firm in 1941, is also a director of the engineering corporation. **Alfred L. Hartridge,** previously treasurer and a vice-president, has been chosen financial vice-president. Mr. Hartridge, who became associated with the company in 1931, is also a director. In addition, **Richard N. Benjamin,** president of Stone and Webster, Inc., has been elected a director of the engineering corporation, and **F. E. Conger** has been named assistant secretary.

Felix A. Mulgrew, vice-president, Bankers Trust Co.'s public utility group, has been named a director of The Houston Corp. in Florida.

L. E. Cooper promoted

LLOYD E. COOPER has been elected vice-president and chief engineer of California-Pacific Utilities Co. Mr. Cooper joined the Company in 1954, and became vice-president for rate matters and gas operations in 1957. Prior to 1954, Mr. Cooper was gas supervising engineer for the California Public Utilities Commission.

Higday named superintendent

JAMES L. HIGDAY has been promoted to superintendent of gas operations for The Kansas Power and Light Co. He joined the company in 1957, and has served as superintendent of gas distribution. Before 1957, he was with Public Service Co. of Colorado, where he rose from junior engineer to outside divisions engineer.

OBITUARY

James E. Williams

assistant comptroller and tax executive of the New England Gas and Electric Association, died recently. He was 51. Mr. Williams started with the association as an accountant.

Mr. Williams was an active member of the Joint Tax Committee of A. G. A. and the Edison Electric Institute. He was also a former president of the Boston chapter of the Tax Executives Institute.

Mr. Williams is survived by his widow, Doris, and a daughter.

G. F. Brunston

vice-president in charge of transmission, Colorado Interstate Gas Co., died March 1 after a heart attack. He was 59. Mr. Brunston's retirement was to have become effective on the same day on which he died.

Mr. Brunston started his career in the industry in 1926, when he worked on construction of pipelines in Louisiana. In 1928, he was assigned as a project engineer during the construction of Colorado Interstate's original pipeline from Amarillo to Denver.

Mr. Brunston became chief engineer for the company late in 1928 and, in 1942, took on the additional duties of assistant general superintendent. He was named general superintendent in 1945, and vice-president in charge of transmission in 1951.

Mr. Brunston is survived by his widow, Mildred, a son, a daughter, a brother, and four grandchildren.

Thomas G. Razenberg

former superintendent of gas distribution, Consumers Power Co., died recently. He was 73.

Mr. Razenberg was a past vice-president of the Flint, Mich., Chamber of Commerce.

He is survived by his widow, Kate, four sisters, and two brothers.

Edwin C. Adams

president of Adams Brothers Manufacturing Co., Inc., manufacturers of gas heaters, died Feb. 15 after a brief illness. He was 72 years old.

Mr. Adams was also president of Adams Sales Corp., wholesale appliance distributors.

Mr. Adams had been chairman of A. G. A.'s technical advisory group on gas direct heating research, and chairman of the Gas Appliance Manufacturers Association's direct heating equipment division.

Before he became president of Adams Brothers, Mr. Adams was a purchasing engineer for Koppers Co. of Pittsburgh, and an engineer for several Pittsburgh steel manufacturers.

Mr. Adams was a founder, director and committee chairman of the Smaller Manufacturers Council of the Pittsburgh Chamber of Commerce.

Survivors include his widow, Iona, two sons, two daughters, 13 grandchildren, and one sister.

Edward E. Nelson

former secretary and director of The Commonwealth and Southern Corp., died Feb. 24 at the age of 67.

Mr. Nelson retired as secretary and director of Commonwealth Services, Inc., on Jan. 1, 1957. He had served since 1913 with utilities in the Commonwealth and Southern system and its predecessors.

Mr. Nelson had also been a corporate officer and director of numerous other utilities, including Ohio Edison Co., Pennsylvania Power Co., Consumers Power Co., Central Illinois Light Co., Southern Indiana Gas and Electric Co., and The Tennessee Electric Power Co.

Mr. Nelson is survived by his widow, Lucille, a brother, and three sisters.

CONVENTION CALENDAR

1959

MAY

3-6 •LPGA Annual Meeting, Conrad Hilton Hotel, Chicago, Ill.

5-7 •Research and Utilization Conference, Hotel Carter, Cleveland, Ohio.

11-12 •A. G. A. Eastern Gas Sales Conference, The Netherland-Hilton Hotel, Cincinnati, Ohio.

18-19 •Operating Section Transmission Conference, Statler-Hilton Hotel, Dallas, Texas.

18-20 •A. G. A. Mid-West Regional Gas Sales Conference, Edgewater Beach Hotel, Chicago, Ill.

19-21 •Pennsylvania Gas Association, Pocono Manor Inn, Pocono Manor, Pa.

20 •The Metropolitan Gas Heating & Air Conditioning Council, A. G. A. Headquarters, New York, N. Y.

21-22 •The Natural Gas and Petroleum Association of Canada, Hamilton, Ontario.

25-27 •Operating Section Production Conference, Hotel Sheraton, Rochester, N. Y.

JUNE

7-11 •American Society of Heating and Air Conditioning Engineers, Semi-annual Meeting, Vancouver, B. C.

11-12 •Accounting Section Managing Committee Meeting, The Homestead, Hot Springs, Va.

15-16 •A. G. A. National Public Relations Conference, Edgewater Beach Hotel, Chicago, Ill.

22-23 •Michigan Gas Association, Grand Hotel, Mackinac Island, Mich.

22-24 •American Society of Refrigerating Engineers, Annual Meeting, Lake Placid Club, Lake Placid, N. Y.

22-25 •Canadian Gas Association, Annual Meeting, Empress Hotel, Victoria, Canada.

JULY

20-24 •Western Summer Radio-Television and Appliance Market, Western Merchandise Mart, San Francisco, Calif.

AUGUST

9-13 •American School Food Service Association, Civic Auditorium, Brook Hall, San Francisco, Calif.

24-28 •The American Dietetic Association, Los Angeles, Calif.

26-28 •Mid-West Gas Association, Gas School and Conference, Iowa State College, Ames, Iowa.

Personnel service

SERVICES OFFERED

Attorney—former executive manager bulk station, with public relations and sales experience. Until recently specialized oil and gas law. Prefer New York area, but will consider other. Salary secondary to opportunity. Resume on request. **1949.**

Sales Executive—20 years with large, aggressive utility and five years with gas heating manufacturer. Background of retail and dealer sales and promotion. Thoroughly familiar with problems of selling all gas appliances through planned sales campaigns. Extensive experience in developing manufacturer, distributor, and dealer participation in mass sales programs. **1950.**

Administrative Officer—interested in relocating, desires position in management or operations of utility. Prefer central, west or southwest states but would consider other locations. Broad experience in all phases of gas utility operation. Excellent record, references and resume on request. Available 30 days. **1951.**

Pakistani wishes position as apprentice to learn of United States natural gas company operation. Educated at the University of Punjab with courses in gas technology; Westminster Technical College, London; and completed examinations in gas technology (Parts I and II) of City and Guilds of London. **1952.**

Sales Manager—broad experience in planning and assisting in setting marketing policies and strategy; planning, preparing and executing sales programs; supervision of and contact with district managers and distributors on national basis; merchandising; pricing and sales promotion. Experience also covers managing wholesale salesmen; salesmen's compensation plans; sales training; sales presentations; advertising—national and local; sales promotion; direct mail and copywriting. Married. Will relocate. **1953.**

Executive—ability to interest associates in performing their tasks more enthusiastically and energetically. Good organizer. Twenty-two years of varied experience in management, public relations, public speaking, advertising, sales, accounting and operation of natural gas and combination properties. **1954.**

June Graduate—gas-fuel department, Southern Technical Institute, unit of Georgia Tech, 10 years previous experience, desires position in technical or engineering type work. Service obligation fulfilled. Married. Will relocate. **1955.**

Sales Engineer—desires position as sales manager in industrial gas field. Twelve years experience with large eastern utility selling gas for all industrial applications. B.S. in Industrial Engineering and Master in Business Administration. Prefer locating in New England or Middle Atlantic states area. Age 36. **1956.**

Accounting Executive—over 27 years experience in all phases of utility accounting (nine years in holding company office, 18 years on operating utility properties). Last 16 years treasurer, secretary and director of gas distributee company, last 5 years of which also treasurer and secretary of interstate gas pipeline company. Detailed resume on request. Age 48. **1957.**

Gas Engineer—graduate mechanical engineer with six years experience in all phases of gas warm air furnace business. Broad experience in packaging and cost reduction programs. Seeking position heading up design and development program. Immediately available. Salary open. Married, two children. Age 31. **1958.**

Gas Air Conditioning Sales Engineer—experienced gas air conditioning engineer, managed air conditioning distributorships, operated own air conditioning contracting business, sold GE heat pumps, last two years district sales manager Arkla Air Conditioning. Will locate anywhere. Desires opportunity with gas utility which plans aggressive gas air conditioning sales activities. **1959.**

POSITIONS OPEN

Assistant Superintendent, Gas Distribution—with experience in maintenance, design, construction and operation of services and mains. Working knowledge of regulator control equipment required. Technical training preferred. Four hundred miles of pipeline. Location, Eastern Pennsylvania. **0887.**

Gas Engineer—consulting firm has opening for graduate mechanical engineer with five to ten years experience in gas industry. Work will provide broad experience in all phases of business. Send resume of education, experience and salary expected. All replies held confidential. **0888.**

Manager—Gas Property Pennsylvania—Eastern Pennsylvania utility has openings for managers. Experience in operation and distribution necessary. In reply please state age, education and experience. **0889.**

Industrial Gas Engineer—nationally organized consulting firm needs gas engineer under 40 with diversified experience in the sale of industrial and large commercial gas applications. Familiarity with industrial service work desired. Excellent opportunity for advancement. Salary open. Send complete resume of vocational and personal history. **0890.**

Field Sales Engineer-Gas Meter Specialist—two to four years experience in the gas utility field in engineering capacity. Need strong desire and personality for sales work. Will work as application engineer in our Meter Sales Group for one to two years. After completing this work as an application engineer, will be assigned large territory as meter specialist in sales. Age, 25-35. Salary, $5300-$8500. **0891.**

Manager-Operator—35-45 years old. Small natural gas property—southern community—excellent advancement possibilities. Salary commensurate with education and experience. **0892.**

Operations Manager—new natural gas utility seeks experienced man to be in charge of all operations, including city gate stations, mains and service construction and appliance servicing. Attractive salary, fringe benefits and stock option. **0893.**

General Superintendent-Gas Operations—fast growing and progressive midwest natural gas utility, 16,000 customers, seeking graduate engineer to take immediate position as superintendent in charge of distribution and service with possibilities for advancement to higher positions. Prefer man age 40 with proper background, experience and executive ability to direct supervisors and foremen. Send full resume of education, experience, age, references and salary requirements. **0894.**

New England Gas

(Continued from page 39)

erations, Boston Gas, and retiring president of the association; and Robert Welch, editor and publisher of *American Opinion*.

The first afternoon was devoted to discussions of "Public Safety and Its Importance to Our Industry." Participants in that program included Mr. Dowden, who is chairman of the association's accident prevention committee; Mr. Williams; Clarence B. Myatt, insurance manager, NEGEA Service Corp.; Harlan P. Newton, manager, claim division, Boston Gas; Edward F. Kennedy, assistant to the president, New England Electric System's gas division; and Hall M. Henry, president, NEGEA Service.

During the second morning, there were talks on "Programs for Progress." Participants were C. S. Stackpole, managing director, A. G. A.; Daniel Parson, director, Bureau of Statistics, A. G. A.; Francis C. Barton, Jr., vice-president and general manager, radio and television, Lennen and Newell, Inc., advertising agency; Fred W. Batten, vice-president, Columbia Gas System Service Corp.; William H. Dalton, managing director, Canadian Gas Association; Lawrence H. Gall, research director, Independent Natural Gas Association of America; Clifford V. Coons, executive vice-president, Rheem Manufacturing Co., and president, GAMA; and J. Theodore Wolfe, president, Baltimore Gas and Electric Co., and president, A. G. A.

The second afternoon featured a talk on gas air conditioning by Keith T. Davis, manager of gas air conditioning, Bryant Manufacturing Co., and presentations on "The Gold Star Story" by Mr. Brigham and Gerald P. Mullins, manager, New Freedom Gas Home Bureau, A. G. A.

297-year-old church is converted to gas heat

THE HEATING SYSTEM of the First Presbyterian Church in Jamaica, the oldest Presbyterian church in the western hemisphere—the church dates back to 1662—has been converted from oil to gas.

The entire three-building church plant, located at 89-60 164 Street, Jamaica, New York, is now heated by gas.

One of the main reasons for the conversion was the desire of church officials to be able to heat the various sections of the buildings separately. Previously, one thermostat controlled all the heat. Gas will be supplied by The Brooklyn Union Gas Co.

Arkla plans schools

ARKLA AIR CONDITIONING CORP. has planned a series of gas air conditioner training schools for 1959. The schools will cover maintenance, service, application engineering, and sales.

Schools concerned with the maintenance and service of the Arkla-Servel Sun Valley gas air conditioner and the Arkla-Servel 25-ton water chiller will be conducted monthly throughout the rest of the year at Arkla's factory in Evansville, Ind. The dates of, and the applications for, these classes can be obtained from the Service Training Department, Arkla Air Conditioning Corp., Evansville 3, Ind.

Application engineering and sales classes will be held at Arkla's national sales offices in Little Rock, Ark. Schedules for these classes are available from the Application Engineer Training Department, Arkla Air Conditioning Corp., 812 Main Street, Little Rock, Ark.

Arkla also plans four water chiller application engineering schools at Little Rock, and several application engineering and sales (small tonnage) classes. Full details about these courses are available from Arkla's Evansville office.

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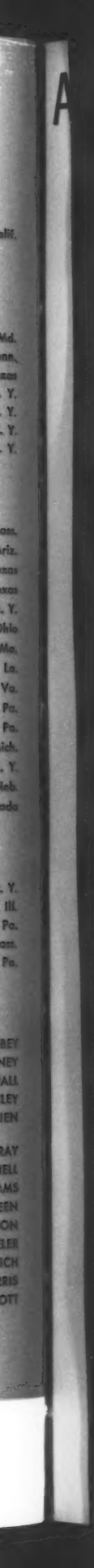
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